

SEQUENCE LISTING

<110> Falco, S. Carl
Allen, Stephen M.

<120> Plant Amino Acid Biosynthetic Enzymes

<130> BB1116 US CIP

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<150> 09/424,976

<151> 1999-12-02

<150> 60/065,385

<151> 1997-11-12

<150> 60/049,406

<151> 1997-06-12

<160> 72

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<210> 1

<211> 826

<212> DNA

<213> Oryza sativa

<400> 1

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| gctggggctg | cggccatgga | agaactcaaa | cttcaaactc | aagaggtctt | ggcggggaaa | 120 |
| gcaccaacat | gcaacatttt | cagtcagcag | tatgctttta | atatattttc | acataatgca | 180 |
| ccaattggtg | aaaatgggta | caatgaggag | gagatgaaga | tggtgaagga | gaccagaaaa | 240 |
| atctggaatg | ataaagatgt | gaaggtaact | gcaacctgca | tacgagttcc | tgtgatgcgt | 300 |
| gcacatgctg | aaagtgtgaa | tctacagttt | gaaaagccac | ttgatgagga | tactgcaagg | 360 |
| gaaatcttga | gggcagctga | aggtgttacc | attattgatg | accgtgcttc | caatcgcttc | 420 |
| cccacacctc | ttgaggtatc | ggataaagat | gatgtagcag | tggttagaat | tcgtcaggat | 480 |
| ttgtcgcaag | atgataacaa | agggctggac | atatttggtt | gtggagatca | aatacgtaaa | 540 |
| ggtgctgcac | tcaatgctgt | gcagattgct | gaaatgctac | tcaagtgatt | ttcttttctg | 600 |
| tacctttctc | tccttgcccc | tctttgctct | agtcattggt | tgacggatgt | actctgggta | 660 |
| gtatgagatc | aattttgatc | atcttttgta | atctatatcc | ctagtgaat | aaatgtaaaa | 720 |
| cggttttgct | ctatcttctg | cacaagtgtg | gaagaaatct | gaaattggga | aattggagtg | 780 |
| tggcccttgt | tcaaaaaaaaa | aaaaaaaaaa | aaaaaaaaaa | aaaaaa | | 826 |

<210> 2

<211> 195

<212> PRT

<213> Oryza sativa

<400> 2

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Tyr | Arg | His | Ala | Lys | Val | Val | Arg | Met | Val | Val | Ser | Thr | Tyr | Gln |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Ala | Ser | Gly | Ala | Gly | Ala | Ala | Ala | Met | Glu | Glu | Leu | Lys | Leu | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Gln | Glu | Val | Leu | Ala | Gly | Lys | Ala | Pro | Thr | Cys | Asn | Ile | Phe | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |

Gln Gln Tyr Ala Phe Asn Ile Phe Ser His Asn Ala Pro Ile Val Glu
50 55 60

Asn Gly Tyr Asn Glu Glu Glu Met Lys Met Val Lys Glu Thr Arg Lys
65 70 75 80

Ile Trp Asn Asp Lys Asp Val Lys Val Thr Ala Thr Cys Ile Arg Val
85 90 95

Pro Val Met Arg Ala His Ala Glu Ser Val Asn Leu Gln Phe Glu Lys
100 105 110

Pro Leu Asp Glu Asp Thr Ala Arg Glu Ile Leu Arg Ala Ala Glu Gly
115 120 125

Val Thr Ile Ile Asp Asp Arg Ala Ser Asn Arg Phe Pro Thr Pro Leu
130 135 140

Glu Val Ser Asp Lys Asp Asp Val Ala Val Gly Arg Ile Arg Gln Asp
145 150 155 160

Leu Ser Gln Asp Asp Asn Lys Gly Leu Asp Ile Phe Val Cys Gly Asp
165 170 175

Gln Ile Arg Lys Gly Ala Ala Leu Asn Ala Val Gln Ile Ala Glu Met
180 185 190

Leu Leu Lys
195

<210> 3
<211> 875
<212> DNA
<213> Triticum aestivum

<400> 3

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| ataccaagca | gcaagtgggtg | ctgggtgctgc | agccatggaa | gaactcaaac | ttcagactcg | 120 |
| agaggtcttg | gaaggaaagc | caccaacctg | taacattttc | agtcaacagt | atgcttttaa | 180 |
| tatatatttcg | cataatgcac | ctattgttga | aaatggctat | aatgaggaag | agatgaaaat | 240 |
| ggtgaaggag | accagaaaaa | tctggaatga | caaggatgta | agagtaactg | caacttgtat | 300 |
| acgggttcct | acgatgcgcg | cgcatgccga | aagcgtgaat | ctacagtttg | aaaagccact | 360 |
| tgatgaggac | actgccagag | aaatcttgag | ggcagctcct | ggtgttacca | ttagtgcaga | 420 |
| ccgtgctgcc | aaccgcttcc | ctacaccact | ggaggtatcg | gataaaagatg | acgtatcagt | 480 |
| tggtaggatt | cgccaggact | tgtcacaaga | tgataacaga | gggttgagat | tatttgtctg | 540 |
| tgagagaccag | atacgtaaag | gcgccgcgct | gaacgctgtg | cagattgctg | aaatgctact | 600 |
| gaagtgaccg | cctttttacc | attgtctcat | gtgccacgtt | gctctatcca | ttgatggatt | 660 |
| gatgtactct | agtcactttc | aaccagttt | tggtcgtcgt | cttttttgta | atctgtcaac | 720 |
| ctagcagaag | aagtgtaaaga | cgggctttag | tcatctgttg | cacacaaaag | tgcagccaca | 780 |
| agtttagaaa | aggagggttt | tcacttgttc | ggattttgcc | ttaggttgga | ctttgttgca | 840 |
| agttgtcgtt | tgtttcttga | aagctgggtct | gctgt | | | 875 |

<210> 4
<211> 201
<212> PRT
<213> Triticum aestivum

<400> 4
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 Val Val Ser Thr Tyr Gln Ala Ala Ser Gly Ala Gly Ala Ala Ala Met
 20 25 30
 Glu Glu Leu Lys Leu Gln Thr Arg Glu Val Leu Glu Gly Lys Pro Pro
 35 40 45
 Thr Cys Asn Ile Phe Ser Gln Gln Tyr Ala Phe Asn Ile Phe Ser His
 50 55 60
 Asn Ala Pro Ile Val Glu Asn Gly Tyr Asn Glu Glu Glu Met Lys Met
 65 70 75 80
 Val Lys Glu Thr Arg Lys Ile Trp Asn Asp Lys Asp Val Arg Val Thr
 85 90 95
 Ala Thr Cys Ile Arg Val Pro Thr Met Arg Ala His Ala Glu Ser Val
 100 105 110
 Asn Leu Gln Phe Glu Lys Pro Leu Asp Glu Asp Thr Ala Arg Glu Ile
 115 120 125
 Leu Arg Ala Ala Pro Gly Val Thr Ile Ser Asp Asp Arg Ala Ala Asn
 130 135 140
 Arg Phe Pro Thr Pro Leu Glu Val Ser Asp Lys Asp Asp Val Ser Val
 145 150 155 160
 Gly Arg Ile Arg Gln Asp Leu Ser Gln Asp Asp Asn Arg Gly Leu Glu
 165 170 175
 Leu Phe Val Cys Gly Asp Gln Ile Arg Lys Gly Ala Ala Leu Asn Ala
 180 185 190
 Val Gln Ile Ala Glu Met Leu Leu Lys
 195 200

<210> 5
 <211> 457
 <212> DNA
 <213> Glycine max

<220>
 <221> unsure
 <222> (211)

<220>
 <221> unsure
 <222> (319)

<220>
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 <222> (377)

<220>
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 <222> (391) (392)

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Arg Ile Thr Phe Glu Asp
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<210> 7

<211> 160

<212> PRT

<213> Legionella pneumophila

<400> 7

Met Ser Arg His Leu Asn Val Ala Ile Val Gly Ala Thr Gly Ala Val
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Gly Glu Thr Phe Leu Thr Val Leu Glu Glu Arg Asn Phe Pro Ile Lys
20 25 30

Ser Leu Tyr Pro Leu Ala Ser Ser Arg Ser Val Gly Lys Thr Val Thr
35 40 45

Phe Arg Asp Gln Glu Leu Asp Val Leu Asp Leu Ala Glu Phe Asp Phe
50 55 60

Ser Lys Val Asp Leu Ala Leu Phe Ser Ala Gly Gly Ala Val Ser Lys
65 70 75 80

Glu Tyr Ala Pro Lys Ala Val Ala Ala Gly Cys Val Val Val Asp Asn
85 90 95

Thr Ser Cys Phe Arg Tyr Glu Asp Asp Ile Pro Leu Val Val Pro Gly
100 105 110

Ser Glu Ser Ser Ser Asn Arg Asp Tyr Thr Lys Arg Gly Ile Ile Ala
115 120 125

Asn Pro Asn Cys Ser Thr Ile Gln Met Val Val Ala Leu Lys Pro Ile
130 135 140

Tyr Asp Ala Val Gly Ile Ser Arg Ile Asn Val Ala Thr Tyr Gln Ser
145 150 155 160

<210> 8

<211> 1054

<212> DNA

<213> Zea mays

<400> 8

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| tgtaaatgtg | gatagcgaat | ttgatttgga | gaatattgtc | agagctgcaa | gagctactgg | 120 |
| aaagaaaagt | cctgttttgc | ttcgaataaa | tccagatgtg | gatccgcagg | tacatcctta | 180 |
| tgttgccacg | ggaaataaaa | cgtctaaatt | tgggatccgc | aatgagaaat | tgcaatggtt | 240 |
| tttggaactct | atcaagtcac | acccgaatga | aatcaaaactc | gttggtgttc | attgccatct | 300 |
| gggatctact | attacaaagg | ttgatataatt | cagagatgct | gcagttctta | tgctgaatta | 360 |
| tgatcgatgaa | attcgagcac | aaggttttta | gttgaggtac | ctgaatatcg | gaggtgggtt | 420 |
| gggaatagat | taccatcata | ccgatgcagt | cttacctaca | cctatggatc | tcatacaacac | 480 |
| tgtgcgagaa | ttagttctct | ctcaagatct | cactcttatt | attgaaccgc | gaagatcctt | 540 |
| gattgctaatt | acttgctgct | tcgtcaatag | agtaactggt | gttaaactta | atggtacaaa | 600 |

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|------|
| gaatttcatt | gttgttgatg | gcagcatggc | agaactcatc | agacctagtc | tgtatggagc | 660 |
| ataccagcat | atcgaactgg | tctctccccc | cactcctggt | gctgaagcag | cgaccttcga | 720 |
| tattgttgga | ccagtttgtg | agtctgcaga | tttccttgga | aaagataggg | aacttccaac | 780 |
| acctgatgag | ggagctggac | tggttgttca | tgatgcaggt | gcctactgca | tgagcatggc | 840 |
| ttccacctac | aacctgaagt | tgaggccacc | ggaatactgg | gtggaagcgg | acggttcgat | 900 |
| cgtaagatc | aggcatggag | agaagcttga | tgactacatg | aagttctttg | atgggtcttcc | 960 |
| tgcttagatg | tttattatct | gcgactgcta | cggacgatgt | tttcttgggg | ataattggat | 1020 |
| tttctttgtc | aaaaaaaaaa | aaaaaaaaaa | aaaa | | | 1054 |

<210> 9
 <211> 321
 <212> PRT
 <213> Zea mays

<400> 9

| | | | | | | | | | | | | | | | | |
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| 1 | | | 5 | | | | | | 10 | | | | | 15 | | |
| Ser | Gly | Val | Phe | Val | Asn | Val | Asp | Ser | Glu | Phe | Asp | Leu | Glu | Asn | Ile | |
| | | 20 | | | | | | 25 | | | | | 30 | | | |
| Val | Arg | Ala | Ala | Arg | Ala | Thr | Gly | Lys | Lys | Val | Pro | Val | Leu | Leu | Arg | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Ile | Asn | Pro | Asp | Val | Asp | Pro | Gln | Val | His | Pro | Tyr | Val | Ala | Thr | Gly | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Asn | Lys | Thr | Ser | Lys | Phe | Gly | Ile | Arg | Asn | Glu | Lys | Leu | Gln | Trp | Phe | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Leu | Asp | Ser | Ile | Lys | Ser | Tyr | Pro | Asn | Glu | Ile | Lys | Leu | Val | Gly | Val | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| His | Cys | His | Leu | Gly | Ser | Thr | Ile | Thr | Lys | Val | Asp | Ile | Phe | Arg | Asp | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Ala | Ala | Val | Leu | Met | Leu | Asn | Tyr | Val | Asp | Glu | Ile | Arg | Ala | Gln | Gly | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Phe | Lys | Leu | Glu | Tyr | Leu | Asn | Ile | Gly | Gly | Gly | Leu | Gly | Ile | Asp | Tyr | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| His | His | Thr | Asp | Ala | Val | Leu | Pro | Thr | Pro | Met | Asp | Leu | Ile | Asn | Thr | |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | | |
| Val | Arg | Glu | Leu | Val | Leu | Ser | Gln | Asp | Leu | Thr | Leu | Ile | Ile | Glu | Pro | |
| | | | 165 | | | | | | 170 | | | | | 175 | | |
| Gly | Arg | Ser | Leu | Ile | Ala | Asn | Thr | Cys | Cys | Phe | Val | Asn | Arg | Val | Thr | |
| | | 180 | | | | | | 185 | | | | | 190 | | | |
| Gly | Val | Lys | Ser | Asn | Gly | Thr | Lys | Asn | Phe | Ile | Val | Val | Asp | Gly | Ser | |
| | | 195 | | | | | 200 | | | | | | 205 | | | |
| Met | Ala | Glu | Leu | Ile | Arg | Pro | Ser | Leu | Tyr | Gly | Ala | Tyr | Gln | His | Ile | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Glu | Leu | Val | Ser | Pro | Pro | Thr | Pro | Gly | Ala | Glu | Ala | Ala | Thr | Phe | Asp | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |

Ile Val Gly Pro Val Cys Glu Ser Ala Asp Phe Leu Gly Lys Asp Arg
245 250 255
Glu Leu Pro Thr Pro Asp Glu Gly Ala Gly Leu Val Val His Asp Ala
260 265 270
Gly Ala Tyr Cys Met Ser Met Ala Ser Thr Tyr Asn Leu Lys Leu Arg
275 280 285
Pro Pro Glu Tyr Trp Val Glu Ala Asp Gly Ser Ile Val Lys Ile Arg
290 295 300
His Gly Glu Lys Leu Asp Asp Tyr Met Lys Phe Phe Asp Gly Leu Pro
305 310 315 320

Ala

<210> 10
<211> 1813
<212> DNA
<213> Zea mays

<400> 10
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tcagcggcaa cgagctccga ctgcgccctc aggcgggatt cgaccccgcc aggtgtatat 540
ttaacggaaa tgggaagaca ctogaagatc ttaaattggc tgctgagagt ggagtatttg 600
taaatgtgga tagtgaattt gatttagaga atattgtcag agctgcaaga gctactggaa 660
agaaagtgcc tgttttactt agaataaatc cagatgtgga tccacaggta catccatatg 720
ttgccacggg aaataaaaca tccaaattcg ggatccgcaa tgagaaattg caatggtttt 780
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attcgccta tag 1813

<210> 11
<211> 486
<212> PRT
<213> Zea mays

0001457 081604

<400> 11
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20 25 30
Phe Pro Arg Arg Arg Ala Arg Leu Ser Val Cys Ala Ser Val Ser Met
35 40 45
Ala Ser Pro Ser Pro Pro Pro Gln Pro Ala Ala Ala Gly Val Pro Lys
50 55 60
His Cys Phe Arg Arg Gly Ala Asp Gly Tyr Leu Tyr Cys Glu Gly Val
65 70 75 80
Arg Val Glu Asp Ala Met Ala Ala Ala Glu Arg Ser Pro Phe Tyr Leu
85 90 95
Tyr Ser Lys Leu Gln Ile Leu Arg Asn Phe Ala Ala Tyr Arg Asp Ala
100 105 110
Leu Gln Gly Leu Arg Ser Ile Val Gly Tyr Ala Val Lys Ala Asn Asn
115 120 125
Asn Leu Pro Val Leu Arg Val Leu Arg Glu Leu Gly Cys Gly Ala Val
130 135 140
Leu Val Ser Gly Asn Glu Leu Arg Leu Ala Leu Gln Ala Gly Phe Asp
145 150 155 160
Pro Ala Arg Cys Ile Phe Asn Gly Asn Gly Lys Thr Leu Glu Asp Leu
165 170 175
Lys Leu Ala Ala Glu Ser Gly Val Phe Val Asn Val Asp Ser Glu Phe
180 185 190
Asp Leu Glu Asn Ile Val Arg Ala Ala Arg Ala Thr Gly Lys Lys Val
195 200 205
Pro Val Leu Leu Arg Ile Asn Pro Asp Val Asp Pro Gln Val His Pro
210 215 220
Tyr Val Ala Thr Gly Asn Lys Thr Ser Lys Phe Gly Ile Arg Asn Glu
225 230 235 240
Lys Leu Gln Trp Phe Leu Asn Ser Ile Lys Ser Tyr Ser Asn Glu Ile
245 250 255
Lys Leu Val Gly Val His Cys His Leu Gly Ser Thr Ile Thr Lys Val
260 265 270
Asp Ile Phe Arg Asp Ala Ala Val Leu Met Val Asn Tyr Val Asp Glu
275 280 285
Ile Arg Ala Gln Gly Phe Lys Leu Glu Tyr Leu Asn Ile Gly Gly Gly
290 295 300

Leu Gly Ile Asp Tyr His His Thr Asp Ala Val Leu Pro Thr Pro Met
305 310 315 320

Asp Leu Ile Asn Thr Val Arg Glu Leu Val Leu Ser Gln Asp Leu Thr
325 330 335

Leu Ile Ile Glu Pro Gly Arg Ser Leu Ile Ala Asn Thr Cys Cys Phe
340 345 350

Val Asn Arg Val Thr Gly Val Lys Ser Asn Gly Thr Lys Asn Phe Ile
355 360 365

Val Val Asp Gly Ser Met Ala Glu Leu Ile Arg Pro Ser Leu Tyr Gly
370 375 380

Ala Tyr Gln His Ile Glu Leu Val Ser Pro Pro Thr Pro Gly Ala Glu
385 390 395 400

Val Ala Thr Phe Asp Ile Val Gly Pro Val Cys Glu Ser Ala Asp Phe
405 410 415

Leu Gly Lys Asp Arg Glu Leu Pro Thr Pro Asp Glu Gly Ala Gly Leu
420 425 430

Val Val His Asp Ala Gly Ala Tyr Cys Met Ser Met Ala Ser Thr Tyr
435 440 445

Asn Leu Lys Leu Arg Pro Pro Glu Tyr Trp Val Glu Glu Asp Gly Ser
450 455 460

Ile Val Lys Ile Arg His Glu Glu Lys Leu Asp Asp Tyr Met Lys Phe
465 470 475 480

Phe Asp Gly Leu Pro Ala
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<210> 12
<211> 1116
<212> DNA
<213> Oryza sativa

<400> 12

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| tgcgagagtt | gctgggaaga | aagtccctgt | tttgctcagg | ataaaccag | atgtggatcc | 120 |
| acaggtccat | ccttatgttg | cgactggaaa | caaaacctcc | aaatttggtg | tccgtaatga | 180 |
| gaaactacaa | tggttcttag | actctatcaa | gtcatactca | aatgatata | caactggtgg | 240 |
| tggtcattgt | catctgggat | ctaccattac | aaaggtcgat | atatttagag | atgcggcagg | 300 |
| tcttatgggtg | aattatgttg | atgaaattcg | agcacaaggt | tttgaactgg | aatatctcaa | 360 |
| tattggcggg | ggcctgggca | tagwttatca | ccacacggat | gcagtcttgc | ctacacctat | 420 |
| gggacctcat | caacactgtg | ccgaagaatt | agttctgtca | cgagatctta | cactcatcat | 480 |
| tgaacctggg | agatccctca | tagctaacac | ttgctgcttc | gtcaataggg | tcaactggtg | 540 |
| taaatcta | ggtacaaaga | atttcattgt | agttgatggc | agcatggcag | agcttatcag | 600 |
| accaagtcta | tatggagcat | accagcatat | cgaactgggt | tctccttccc | cagatgcaga | 660 |
| agtagcaaca | ttcgatattg | ttggaccagt | ttgtgaatct | gcagatttcc | ttggcaaaga | 720 |
| cagggaaact | ccaacacctg | ataagggagc | tggtttgggtg | gttcatgacg | caggagccta | 780 |
| ctgcatgagc | atggcttcaa | cctacaactt | gaagttgcga | ccacctgaat | attgggtaga | 840 |
| agatgatggg | tccattgcta | agattcgggc | tggaagatca | tttgatgact | acatgaagtt | 900 |
| ctttgataat | ctctctgcct | aactcgtttt | cctgcaattg | taataagatt | tttctcttgt | 960 |
| tatgtgtggc | tgtatcagga | ttcggattga | tagcgcagta | cagtttgctg | tagaatcggt | 1020 |

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<210> 13
 <211> 306
 <212> PRT
 <213> Oryza sativa

<400> 13

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 35 40 45
 Gly Asn Lys Thr Ser Lys Phe Gly Ile Arg Asn Glu Lys Leu Gln Trp
 50 55 60
 Phe Leu Asp Ser Ile Lys Ser Tyr Ser Asn Asp Ile Thr Leu Val Gly
 65 70 75 80
 Val His Cys His Leu Gly Ser Thr Ile Thr Lys Val Asp Ile Phe Arg
 85 90 95
 Asp Ala Ala Gly Leu Met Val Asn Tyr Val Asp Glu Ile Arg Ala Gln
 100 105 110
 Gly Phe Glu Leu Glu Tyr Leu Asn Ile Gly Gly Gly Leu Gly Ile Xaa
 115 120 125
 Tyr His His Thr Asp Ala Val Leu Pro Thr Pro Met Gly Pro His Gln
 130 135 140
 His Cys Ala Glu Glu Leu Val Leu Ser Arg Asp Leu Thr Leu Ile Ile
 145 150 155 160
 Glu Pro Gly Arg Ser Leu Ile Ala Asn Thr Cys Cys Phe Val Asn Arg
 165 170 175
 Val Thr Gly Val Lys Ser Asn Gly Thr Lys Asn Phe Ile Val Val Asp
 180 185 190
 Gly Ser Met Ala Glu Leu Ile Arg Pro Ser Leu Tyr Gly Ala Tyr Gln
 195 200 205
 His Ile Glu Leu Val Ser Pro Ser Pro Asp Ala Glu Val Ala Thr Phe
 210 215 220
 Asp Ile Val Gly Pro Val Cys Glu Ser Ala Asp Phe Leu Gly Lys Asp
 225 230 235 240
 Arg Glu Leu Pro Thr Pro Asp Lys Gly Ala Gly Leu Val Val His Asp
 245 250 255
 Ala Gly Ala Tyr Cys Met Ser Met Ala Ser Thr Tyr Asn Leu Lys Leu
 260 265 270

0992457 031604

Arg Pro Pro Glu Tyr Trp Val Glu Asp Asp Gly Ser Ile Ala Lys Ile
 275 280 285

Arg Arg Gly Glu Ser Phe Asp Asp Tyr Met Lys Phe Phe Asp Asn Leu
 290 295 300

Ser Ala
 305

<210> 14
 <211> 968
 <212> DNA
 <213> Glycine max

<400> 14

| | | | | | | |
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| gttgccactg | ggaataagaa | ctctaaattt | ggcattagaa | atgagaagct | gcagtgcctt | 60 |
| ttagatgcag | tgaaggaaca | tcctaataag | ctcaaacttg | taggggcca | ctgccatctt | 120 |
| ggttcaacaa | ttaccaaggt | tgacattttc | agggatgcag | ccaccattat | gatcaactac | 180 |
| attgaccaaa | tccgagatca | gggttttgaa | gttgattact | taaatattgg | tgaggagactt | 240 |
| gggatagatt | attatcattc | tggtgccatc | cttcctacac | ctagagatct | cattgacact | 300 |
| gtacgagatc | ttgttatttc | acgtggtcct | aatctcatca | ttgaaccagg | aagatcactc | 360 |
| attgcaaaaca | cgtgttgctt | agttaaccgg | gtgacaggtg | ttaaaactaa | tgatctataa | 420 |
| aacttcattg | taattgatgg | aagtatggct | gaaettatcc | gccctagtct | ttatgatgct | 480 |
| taccagcata | tagagctggt | ttcccctgcc | ccgtcaaagt | ctgaaacaga | aacttttgat | 540 |
| gtggttgccc | ctgtctgtga | gtctgcagat | ttcttaggaa | aaggaagaga | acttcctact | 600 |
| ccagccaagg | gtactggttt | ggttgttcat | gatgctggtg | cttattgcat | gagcatggca | 660 |
| tcaacctaca | atctaaagat | gcggcctcct | gagtattggg | ttgaagatga | tgatcagtg | 720 |
| agcaaaataa | gacatggaga | gacttttgaa | gaccacattc | ggttttttga | ggggctttga | 780 |
| gctaataatt | tatctttag | gaaagaaggc | tgagaattg | ttatgtactt | ggagtttgaa | 840 |
| tctttcctcg | tcaatgaatg | catgactctt | gtagttctgt | ttcttccgtt | ctaattgaat | 900 |
| gttgactccc | atgacaggaa | cagagaataa | agttgatttc | agtttagattt | aaaaaaaaaa | 960 |
| aaaaaaaaa | | | | | | 968 |

<210> 15
 <211> 259
 <212> PRT
 <213> Glycine max

<400> 15

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ala | Thr | Gly | Asn | Lys | Asn | Ser | Lys | Phe | Gly | Ile | Arg | Asn | Glu | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Gln | Cys | Phe | Leu | Asp | Ala | Val | Lys | Glu | His | Pro | Asn | Glu | Leu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Val | Gly | Ala | His | Cys | His | Leu | Gly | Ser | Thr | Ile | Thr | Lys | Val | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Phe | Arg | Asp | Ala | Ala | Thr | Ile | Met | Ile | Asn | Tyr | Ile | Asp | Gln | Ile |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Arg | Asp | Gln | Gly | Phe | Glu | Val | Asp | Tyr | Leu | Asn | Ile | Gly | Gly | Gly | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Ile | Asp | Tyr | Tyr | His | Ser | Gly | Ala | Ile | Leu | Pro | Thr | Pro | Arg | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |

Leu Ile Asp Thr Val Arg Asp Leu Val Ile Ser Arg Gly Leu Asn Leu
 100 105 110
 Ile Ile Glu Pro Gly Arg Ser Leu Ile Ala Asn Thr Cys Cys Leu Val
 115 120 125
 Asn Arg Val Thr Gly Val Lys Thr Asn Gly Ser Lys Asn Phe Ile Val
 130 135 140
 Ile Asp Gly Ser Met Ala Glu Leu Ile Arg Pro Ser Leu Tyr Asp Ala
 145 150 155 160
 Tyr Gln His Ile Glu Leu Val Ser Pro Ala Pro Ser Asn Ala Glu Thr
 165 170 175
 Glu Thr Phe Asp Val Val Gly Pro Val Cys Glu Ser Ala Asp Phe Leu
 180 185 190
 Gly Lys Gly Arg Glu Leu Pro Thr Pro Ala Lys Gly Thr Gly Leu Val
 195 200 205
 Val His Asp Ala Gly Ala Tyr Cys Met Ser Met Ala Ser Thr Tyr Asn
 210 215 220
 Leu Lys Met Arg Pro Pro Glu Tyr Trp Val Glu Asp Asp Gly Ser Val
 225 230 235 240
 Ser Lys Ile Arg His Gly Glu Thr Phe Glu Asp His Ile Arg Phe Phe
 245 250 255
 Glu Gly Leu

<210> 16
 <211> 676
 <212> DNA
 <213> Triticum aestivum

<220>
 <221> unsure
 <222> (373)

<220>
 <221> unsure
 <222> (406)

<220>
 <221> unsure
 <222> (429)

<220>
 <221> unsure
 <222> (432)

<220>
 <221> unsure
 <222> (455)

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ntagatgaga ttntgg 676

<210> 17
<211> 73
<212> PRT
<213> Triticum aestivum

<400> 17
Pro Thr Pro Met Asp Leu Ile Asn Thr Val Arg Glu Leu Val Leu Ser
1 5 10 15
Arg Asp Leu Thr Leu Ile Ile Glu Pro Gly Arg Ser Leu Ile Ala Asn
20 25 30
Thr Cys Cys Phe Val Asn Lys Val Thr Gly Val Lys Ser Asn Gly Thr
35 40 45
Lys Asn Phe Ile Val Val Asp Gly Ser Met Ala Glu Leu Ile Arg Pro
50 55 60
Ser Leu Tyr Gly Ala Tyr Gln His Ile
65 70

<210> 18
<211> 544
<212> DNA
<213> Glycine max

<220>
<221> unsure
<222> (465)

<220>
<221> unsure
<222> (524)

<220>
<221> unsure
<222> (537)

<400> 18
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aaacgcgtta tcccaaaagc ttttttttct gccctcctcaa ttcaaagcca ccacaaaacc 180
acgtgctctc agagcggttc tctcgagaa cgctgtcaaa acctcgggtg aggacacaaa 240
gaacgctcat tttcagcact gtttcaccaa atccgaagat gggatatctg actgtgaggg 300
cctcaagggt catgacatca tggaatctgt tgagagaaga ctttctatt gtacagcaa 360
gccccagata actaggaatg ttgaagccta caaggatgca ttggaagggt tgaactccat 420
aattggttat gccattaagg ccaataataa cttgaagatt ttggnacatt tgaggcactt 480
gggttggtgt gctgtgcttg ttagtgggaa tgagctgaag ttgntcttcg agctggnttt 540
gttc 544

<210> 19
<211> 62

<212> PRT
<213> Glycine max

<220>
<221> UNSURE
<222> (44)

<400> 19

Arg Arg Pro Phe Tyr Leu Tyr Ser Lys Pro Gln Ile Thr Arg Asn Val
1 5 10 15

Glu Ala Tyr Lys Asp Ala Leu Glu Gly Leu Asn Ser Ile Ile Gly Tyr
20 25 30

Ala Ile Lys Ala Asn Asn Asn Leu Lys Ile Leu Xaa His Leu Arg His
35 40 45

Leu Gly Cys Gly Ala Val Leu Val Ser Gly Asn Glu Leu Lys
50 55 60

<210> 20

<211> 371

<212> PRT

<213> Pseudomonas aeruginosa

<400> 20

Met Lys Arg Val Gly Leu Ile Gly Trp Arg Gly Met Val Gly Ser Val
1 5 10 15

Leu Ile Gln Arg Met Leu Glu Glu Arg Asp Phe Asp Leu Ile Glu Pro
20 25 30

Val Phe Phe Thr Thr Ser Asn Val Gly Ala Gln Ala Pro Glu Val Asp
35 40 45

Lys Asp Ile Ala Pro Leu Lys Asp Ala Tyr Ser Ile Asp Glu Leu Lys
50 55 60

Thr Leu Asp Val Ile Leu Thr Cys Gln Gly Gly Asp Tyr Thr Ser Glu
65 70 75 80

Val Phe Pro Lys Leu Arg Glu Ala Gly Trp Gln Gly Tyr Trp Ile Asp
85 90 95

Ala Ala Ser Ser Leu Arg Met Glu Asp Asp Ala Val Ile Val Leu Asp
100 105 110

Pro Val Asn Arg Lys Val Ile Asp Gln Ala Leu Asp Ala Gly Thr Arg
115 120 125

Asn Tyr Ile Gly Gly Asn Cys Thr Val Ser Leu Met Leu Met Ala Leu
130 135 140

Gly Gly Leu Phe Asp Ala Gly Leu Val Glu Trp Met Ser Ala Met Thr
145 150 155 160

Tyr Gln Ala Ala Ser Gly Ala Gly Ala Gln Asn Met Arg Asp Leu Leu
165 170 175

Lys Gln Met Gly Ala Ala His Ala Ser Val Ala Asp Asp Leu Ala Asn
180 185 190

Pro Ala Ser Ala Ile Leu Asp Ile Asp Arg Lys Val Ala Glu Thr Leu
195 200 205

Arg Ser Glu Ala Phe Pro Thr Glu His Phe Gly Ala Pro Leu Gly Gly
210 215 220

Ser Leu Ile Pro Trp Ile Asp Lys Glu Leu Ser Gln Arg Arg Gln Ser
225 230 235 240

Arg Glu Glu Trp Lys Ala Gln Ala Glu Thr Asn Lys Ile Leu Ala Arg
245 250 255

Phe Lys Asn Pro Ile Pro Val Asp Gly Ile Cys Val Arg Val Gly Ala
260 265 270

Met Arg Cys His Ser Gln Ala Leu Thr Ile Lys Leu Asn Lys Asp Val
275 280 285

Pro Leu Thr Asp Ile Glu Gly Leu Ile Arg Gln His Asn Pro Trp Val
290 295 300

Lys Leu Val Pro Asn His Arg Glu Val Ser Val Arg Glu Leu Thr Pro
305 310 315 320

Ala Ala Val Thr Gly Thr Leu Ser Val Pro Val Gly Arg Leu Arg Lys
325 330 335

Leu Asn Met Val Ser Gln Tyr Leu Gly Ala Phe Thr Val Gly Asp Gln
340 345 350

Leu Leu Trp Gly Ala Ala Glu Pro Leu Arg Arg Met Leu Arg Ile Leu
355 360 365

Leu Glu Arg
370

<210> 21
<211> 788
<212> DNA
<213> Zea mays

<400> 21

| | | | | | | |
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| cgacaacatc | gcccccgcca | tctctggcgg | cttcgtcctc | gtccgcagct | acgacccctt | 60 |
| tcacctcgtc | ccgctttcct | tcccgccagc | gctecgcctc | cacttcgtcc | tggtcacccc | 120 |
| cgacttcgag | gcgcccacga | gcaagatgcg | cgccgcgctg | cccaggcagg | tcgacgtcca | 180 |
| gcagcacgtg | cgcaactcca | gccaggcagc | ggcgctcgtg | gcggcggtgc | tgcaggggga | 240 |
| cgcgggcctc | atcggtccg | cgatgtcgtc | cgacggcatc | gtggagccca | ccagggcacc | 300 |
| cctcatacct | ggcatggcgg | ccgtaaaggc | ggcggccctg | caagctggag | cgctgggctg | 360 |
| cacaattagc | ggcgcgggcc | ccacagtggg | ggccgtcatc | caaggggagg | aaagggggga | 420 |
| ggaggttgcc | cgcaagatgg | tggacgcgtt | ctggagcgca | ggcaagctca | aggcgacagc | 480 |
| aaccgtcgcg | cagctcgata | cccttggtgc | cagggtcatc | gccacgtcat | ccttgaacta | 540 |
| gcaaaagatt | cggaaagtgg | tactgcaatt | gtatcaccaa | acaaggaaga | atgaagggga | 600 |
| accccatgga | tttgtatgtt | ttctcttctt | tcttgcatct | ttaggtgggt | aattggcttt | 660 |
| ggaataaatg | agatggagga | catcgctaga | acaattctgt | tccgtgggct | gtaatttcaa | 720 |
| tttgggctgg | tttctttatc | atgccatgga | taattatgaa | taaatttgag | gtagtttgtt | 780 |
| aaaaaaaa | | | | | | 788 |

<210> 22
 <211> 179
 <212> PRT
 <213> Zea mays

<400> 22
 Asp Asn Ile Ala Pro Ala Ile Leu Gly Gly Phe Val Leu Val Arg Ser
 1 5 10 15
 Tyr Asp Pro Phe His Leu Val Pro Leu Ser Phe Pro Pro Ala Leu Arg
 20 25 30
 Leu His Phe Val Leu Val Thr Pro Asp Phe Glu Ala Pro Thr Ser Lys
 35 40 45
 Met Arg Ala Ala Leu Pro Arg Gln Val Asp Val Gln Gln His Val Arg
 50 55 60
 Asn Ser Ser Gln Ala Ala Ala Leu Val Ala Ala Val Leu Gln Gly Asp
 65 70 75 80
 Ala Gly Leu Ile Gly Ser Ala Met Ser Ser Asp Gly Ile Val Glu Pro
 85 90 95
 Thr Arg Ala Pro Leu Ile Pro Gly Met Ala Ala Val Lys Ala Ala Ala
 100 105 110
 Leu Gln Ala Gly Ala Leu Gly Cys Thr Ile Ser Gly Ala Gly Pro Thr
 115 120 125
 Val Val Ala Val Ile Gln Gly Glu Glu Arg Gly Glu Glu Val Ala Arg
 130 135 140
 Lys Met Val Asp Ala Phe Trp Ser Ala Gly Lys Leu Lys Ala Thr Ala
 145 150 155 160
 Thr Val Ala Gln Leu Asp Thr Leu Gly Ala Arg Val Ile Ala Thr Ser
 165 170 175
 Ser Leu Asn

<210> 23
 <211> 601
 <212> DNA
 <213> Oryza sativa

<220>
 <221> unsure
 <222> (433)

<220>
 <221> unsure
 <222> (600)

<400> 23
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 ctacccaagg gcctccccct cggctccggc ctcggtcct cgcgcgcctc cgccgcgcgc 120
 gctgccaaagg ccgttgacgc cctcttcggc tccctcctac accaagatga cctcgtcctc 180
 gcgggcctcg agtccgagaa agccgtcagt ggcttcacg ccgacaacat cgccccggcc 240

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| atcctcggcg | gcttcgtcct | cgtccgcagc | tacgaccctt | tccacctcat | cccgtctctc | 300 |
| tccccacctg | ccctccgcct | ccacttcgtc | ctcgtcacgc | ccgacttcga | ggcgcccacc | 360 |
| aagcaagatg | cgtgccgcgc | tgcccaaaca | gggtggcgtc | caccaagcac | gtccgcaact | 420 |
| ccagccaagc | ggncgcgctt | gtcgcgcgtg | tgctgcaagg | ggacgccacc | ctcatcggtt | 480 |
| ccgcaatgtc | ctccgacggc | atcgtggagc | caacaaggcg | ccgctgattc | tggatggctg | 540 |
| cggtcaaagg | cgccggcttg | gaactggggg | aattggctgc | acatcagtgg | agaaggcaan | 600 |
| t | | | | | | 601 |

<210> 24
 <211> 82
 <212> PRT
 <213> Oryza sativa

<220>
 <221> UNSURE
 <222> (56)

<220>
 <221> UNSURE
 <222> (57)

<400> 24
 Val Ser Ile His Leu Thr Lys Gly Leu Pro Leu Gly Ser Gly Leu Gly
 1 5 10 15
 Ser Ser Ala Ala Ser Ala Ala Ala Ala Lys Ala Val Asp Ala Leu
 20 25 30
 Phe Gly Ser Leu Leu His Gln Asp Asp Leu Val Leu Ala Gly Leu Glu
 35 40 45
 Ser Glu Lys Ala Val Ser Gly Xaa Xaa His Ala Asp Asn Ile Ala Pro
 50 55 60
 Ala Ile Leu Gly Gly Phe Val Leu Val Arg Ser Tyr Asp Pro Phe His
 65 70 75 80
 Leu Ile

<210> 25
 <211> 1543
 <212> DNA
 <213> Glycine max

| | | | | | | |
|-------------|-------------|------------|-------------|-------------|------------|-----|
| <400> 25 | | | | | | |
| gaagagagac | aaaccagcaa | gagtggagat | ggcgacgtcg | acgtgcttcc | tgtgtccgtc | 60 |
| tacggcgagt | ttgaaaggca | gggccagatt | cagaatcaga | atcagatgca | gcagcagcgt | 120 |
| gtcgggtcaat | attcgaagg | agcccgaacc | tgtaacgacg | ctgggtgaaag | cgtttgctcc | 180 |
| cgccacggtg | gcgaatctag | gtccaggctt | cgacttccta | ggctgcgccg | tggacggact | 240 |
| cggagacatt | gtgtcgggtga | aggttgacct | acaggttcac | cctggcgaga | tatgcatatc | 300 |
| cgacatcagc | ggccacgccc | caaacaagct | cagcaaaaac | cctctctgga | actgcgccgg | 360 |
| catcgccgcc | attgaagtca | tgaaaatgct | ctccattcga | tccgtcggcc | tctccctctc | 420 |
| cctggagaag | ggcctgcctt | tgggaagcgg | tctgggatcc | agcgccgccca | gcgccgccgc | 480 |
| ggccgcgcgtg | gcggtgaacg | agctgttttg | gaagaaatta | agcgtggagg | agctggttct | 540 |
| ggcatcactg | aaatcggaag | agaagggtgc | ggggtatcac | gcggacaacg | tggcgccatc | 600 |
| gataatgggg | ggttttgtgc | tgatcgggag | ctactcgccg | ctggagttga | tgccgttgaa | 660 |
| gtttccggca | gagaaggagc | tgtatttcgt | gctgggtgacg | cctgagttcg | aggccccgac | 720 |
| gaagaagatg | cgggcagcgc | tgcctacgga | gatcgggatg | ccgcaccacg | tgtggaactg | 780 |
| cagccaggca | ggtgctctgg | tggcgctcgt | gctgcagggc | gacgtggttg | ggttggggaa | 840 |

| | | | | | | |
|------------|------------|------------|-------------|-------------|------------|------|
| ggcattgtcc | tctgacaaga | tcgttgagcc | aaggcggtgcc | cccttgattc | ctggcatgga | 900 |
| ggctgtcaag | agggctgcca | ttcaggccgg | tgtttttggc | tgtaccatca | cgggcgccgg | 960 |
| ccctaccgcc | gtcgccgtca | ttgacgacga | gcaaactgga | cacctcattg | ccaaacacat | 1020 |
| gattgacgct | tttctccatg | ttggcaattt | gaaggcttct | gcaaatgtca | agcagcttga | 1080 |
| tgccttgggt | gctagacgca | ttccaaattg | aaccttctct | tctctatctc | tatgagaggc | 1140 |
| ttgtagattt | caagaaccgg | atttcttcca | acttgctcgt | aacactctaa | gtgctgaccg | 1200 |
| gtcacatgta | tttgaaattt | gatctgatca | atgaagcagc | attctagtgt | ggaggtctga | 1260 |
| ataacaagag | aaacattaaa | cccaagcttg | gagctctggt | tgggtgggtg | aaatttaaat | 1320 |
| agatgaataa | ttatgaaaga | cttagatcag | gtcagtgtta | tggatgaactc | tgaagcatgt | 1380 |
| tttagatttt | ctttgctttg | tttttatcat | atttttatct | tgctacttga | gttgacaaag | 1440 |
| ctcaaaaaga | agtcattttt | agtattttct | tgtttcatta | tgtctagttaa | tcttagcttt | 1500 |
| tgaatagcat | gtattgttcc | ttaaaaaaaa | aaaaaaaaaa | aaa | | 1543 |

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<210> 26
<211> 483
<212> PRT
<213> Glycine max
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Met Ala Thr Ser Thr Cys Phe Leu Cys Pro Ser Thr Ala Ser Leu Lys
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Val Asn Ile Arg Arg Glu Pro Glu Pro Val Thr Thr Leu Val Lys Ala
35 40 45

Gly Cys Ala Val Asp Gly Leu Gly Asp Ile Val Ser Val Lys Val Asp
65 70 75 80

Ala Pro Asn Lys Leu Ser Lys Asn Pro Leu Trp Asn Cys Ala Gly Ile
100 105 110

Ser Leu Ser Leu Glu Lys Gly Leu Pro Leu Gly Ser Gly Leu Gly Ser
130 135 140

Gly Lys Lys Leu Ser Val Glu Glu Leu Val Leu Ala Ser Leu Lys Ser
165 170 175

Met Gly Gly Phe Val Leu Ile Gly Ser Tyr Ser Pro Leu Glu Leu Met
195 200 . 205

Pro Leu Lys Phe Pro Ala Glu Lys Glu Leu Tyr Phe Val Leu Val Thr
 210 215 220

Pro Glu Phe Glu Ala Pro Thr Lys Lys Met Arg Ala Ala Leu Pro Thr
 225 230 235 240

Glu Ile Gly Met Pro His His Val Trp Asn Cys Ser Gln Ala Gly Ala
 245 250 255

Leu Val Ala Ser Val Leu Gln Gly Asp Val Val Gly Leu Gly Lys Ala
 260 265 270

Leu Ser Ser Asp Lys Ile Val Glu Pro Arg Arg Ala Pro Leu Ile Pro
 275 280 285

Gly Met Glu Ala Val Lys Arg Ala Ala Ile Gln Ala Gly Ala Phe Gly
 290 295 300

Cys Thr Ile Ser Gly Ala Gly Pro Thr Ala Val Ala Val Ile Asp Asp
 305 310 315 320

Glu Gln Thr Gly His Leu Ile Ala Lys His Met Ile Asp Ala Phe Leu
 325 330 335

His Val Gly Asn Leu Lys Ala Ser Ala Asn Val Lys Gln Leu Asp Arg
 340 345 350

Leu Gly Ala Arg Arg Ile Pro Asn Thr Phe Ser Ser Leu Ser Leu Glu
 355 360 365

Ala Cys Arg Phe Gln Glu Pro Asp Phe Phe Gln Leu Ala Arg Asn Thr
 370 375 380

Leu Ser Ala Asp Arg Ser His Val Phe Glu Ile Ser Asp Gln Ser Ser
 385 390 395 400

Ile Leu Val Trp Arg Ser Glu Gln Glu Lys His Thr Gln Ala Gly Ser
 405 410 415

Ser Val Trp Val Val Glu Ile Ile Asp Glu Leu Lys Thr Ile Arg Ser
 420 425 430

Val Leu Trp Thr Leu Lys His Val Leu Asp Phe Leu Cys Phe Val Phe
 435 440 445

Ile Ile Phe Leu Ser Cys Tyr Leu Ser Gln Ser Ser Lys Arg Ser His
 450 455 460

Phe Tyr Phe Leu Val Ser Leu Cys Leu Ile Leu Ala Phe Glu His Val
 465 470 475 480

Leu Phe Leu

<210> 27
 <211> 438
 <212> DNA
 <213> Triticum aestivum

<220>
 <221> unsure
 <222> (271)

<220>
 <221> unsure
 <222> (421)

<220>
 <221> unsure
 <222> (425)

<400> 27
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 ccagcgctcc gctccactt cgtcctggtc acccccgact tcgagggcgc cacgagcaag 180
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 gcagcggcgc tccgtggcgc cggtgctgca nggggacgcc gggctcatcg gtccgcgatt 300
 tctccgacgc gcatcgtgga cccaccaagg aaccctcata cctggcatgg cggccgtaaa 360
 ggcggcgcc tgcaactgga cgctgggtgc acattaacgg gcggggccac atggtggctc 420
 ncagngaaga gaggggag 438

<210> 28
 <211> 84
 <212> DNA
 <213> Triticum aestivum

<400> 28
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 Pro Ala Ile Leu Gly Gly Phe Val Leu Val Arg Ser Tyr Asp Pro Phe
 20 25 30
 His Leu Val Pro Leu Ser Phe Pro Pro Ala Leu Arg Leu His Phe Val
 35 40 45
 Leu Val Thr Pro Asp Phe Glu Ala Pro Thr Ser Lys Met Arg Ala Ala
 50 55 60
 Leu Pro Arg Gln Val Asp Val Gln Gln His Val Arg Asn Ser Ser Gln
 65 70 75 80
 Ala Ala Ala Leu

<210> 29
 <211> 300
 <212> PRT
 <213> Methanococcus jannashii

<400> 29
 Met Arg Glu Ile Met Lys Val Arg Val Lys Ala Pro Cys Thr Ser Ala
 1 5 10 15
 Asn Leu Gly Val Gly Phe Asp Val Phe Gly Leu Cys Leu Lys Glu Pro
 20 25 30
 Tyr Asp Val Ile Glu Val Glu Ala Ile Asp Asp Lys Glu Ile Ile Ile
 35 40 45


```

ggattgggta tagtatgatt gctgatgcag aagagaaggg acttatcaca cctggaaaga 300
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ccagggggtta caagctcata attacaatgc ctgcttctat gagtcttgag agaagaatca 420
ttctattagc ttttggagct gagttgggtc tgacagatcc tgctaaggga atgaaagggtg 480
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gctccgatgg gaaaattgat gcatttgttt ctgggatagg cactgggtgg acaataacag 660
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gctctcacta ctgaattttc ttgttacttg taccaggctt taactagatt gttagagtac 1140
tactgtttgt gactctgact ctaaaataaa acttgctcca aaagactagt ttttcttgat 1200
gccctggag cgataatttt gtgcctgcaa cattaaaaag tattcaaagt tgcttataag 1260
taacatgttt catcttttgt tgttgttgag acgaacacgg atgaggtcat aatactatgt 1320
ttctgatttc ctttggtagg gaaaaaaaa aaaaaaaaa aa 1362

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<210> 31
 <211> 325
 <212> PRT
 <213> Glycine max

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<400> 31
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1          5          10          15
Gly Lys Thr Pro Leu Val Tyr Leu Asn Lys Leu Ala Asp Gly Cys Val
20        25        30
Ala Arg Val Ala Ala Lys Leu Glu Leu Met Glu Pro Cys Ser Ser Val
35        40        45
Lys Asp Arg Ile Gly Tyr Ser Met Ile Ala Asp Ala Glu Glu Lys Gly
50        55        60
Leu Ile Thr Pro Gly Lys Ser Val Leu Ile Glu Pro Thr Ser Gly Asn
65        70        75        80
Thr Gly Ile Gly Leu Ala Phe Met Ala Ala Ala Arg Gly Tyr Lys Leu
85        90        95
Ile Ile Thr Met Pro Ala Ser Met Ser Leu Glu Arg Arg Ile Ile Leu
100       105       110
Leu Ala Phe Gly Ala Glu Leu Val Leu Thr Asp Pro Ala Lys Gly Met
115       120       125
Lys Gly Ala Val Gln Lys Ala Glu Glu Ile Leu Ala Lys Thr Pro Asn
130       135       140
Ala Tyr Ile Leu Gln Gln Phe Glu Asn Pro Ala Asn Pro Lys Val His
145       150       155       160
Tyr Glu Thr Thr Gly Pro Glu Ile Trp Lys Gly Ser Asp Gly Lys Ile
165       170       175

```


Lys Gly Ala Val Gln Lys Ala Glu Glu Ile Lys Ala Lys Thr Pro Asn
130 135 140

Ser Tyr Ile Leu Gln Gln Phe Glu Asn Pro Ala Asn Pro Lys Ile His
145 150 155 160

Tyr Glu Thr Thr Gly Pro Glu Ile Trp Arg Gly Ser Gly Gly Lys Ile
165 170 175

Asp Ala Leu Val Ser Gly Ile Gly Thr Gly Gly Thr Val Thr Gly Ala
180 185 190

Gly Lys Tyr Leu Lys Glu Gln Asn Pro Asn Ile Lys Leu Tyr Gly Val
195 200 205

Glu Pro Val Glu Ser Ala Ile Leu Ser Gly Gly Lys Pro Gly Pro His
210 215 220

Lys Ile Gln Gly Ile Gly Ala Gly Phe Ile Pro Gly Val Leu Asp Val
225 230 235 240

Asn Leu Leu Asp Glu Val Ile Gln Val Ser Ser Glu Glu Ser Ile Glu
245 250 255

Thr Ala Lys Leu Leu Ala Leu Lys Glu Gly Leu Leu Val Gly Ile Ser
260 265 270

Ser Gly Ala Ala Ala Ala Ala Ile Arg Ile Ala Lys Arg Pro Glu
275 280 285

Asn Ala Gly Lys Leu Ile Val Ala Val Phe Pro Ser Phe Gly Glu Arg
290 295 300

Tyr Leu Ser Thr Val Leu Phe Glu Ser Val Lys Arg Glu Thr Glu Asn
305 310 315 320

Met Val Phe Glu Pro
325

<210> 33
<211> 789
<212> DNA
<213> Zea mays

<400> 33

| | | | | | | |
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| atagcgcatt | ctcatggtgc | tcttgttttg | gttgacaaca | gcatcatgtc | tccagtgtc | 60 |
| tcccgtccta | tagaactggg | agctgatatc | gtgatgcact | cggctaccaa | atttatagcg | 120 |
| ggacatagtg | atcttatggc | tgggaattctt | gcagtgaagg | gtgagagttt | ggctaaagag | 180 |
| gtaggggttc | tgcaaaatgc | tgaagggtcg | ggtctggcac | cttttgactg | ctggccttgc | 240 |
| ttgaggggaa | tcaaaacccat | ggctctgcgg | gtggagaaac | aacaggctaa | tgcccagaag | 300 |
| attgctgaat | tcctggcgtc | tcacccgagg | gtcaagcaag | taaaactacgc | tgggcttcct | 360 |
| gaccatcctg | ggcgagcttt | acactattcc | caggcaagg | gagcgggctc | tgttctcagt | 420 |
| tttctcaccc | gctcactggc | cctctcaaag | cacgtcgtgg | agaccaccaa | gtacttcagc | 480 |
| gtaacagtca | gcttcgggag | cgtgaagtcc | ctcatcagcc | tgccgtgctt | catgtcccac | 540 |
| gcatcaatcc | ctgcctcggt | ccgcgaggag | cgtggcctaa | ccgacgacct | cgcccgata | 600 |
| tcggtcggca | tcgaggatgt | cgaggacctc | atcgccgatc | tggaccgcgc | gctcagaact | 660 |
| ggcccgggtg | agacatcgcc | gaccccttagg | tcatgtcaag | ctatcttttg | atgattcatt | 720 |
| ggttgactgc | ttgcgtgatg | ataataatgg | gaatgttgct | tggataaaaa | aaaaaaaaaa | 780 |
| aaaactcga | | | | | | 789 |

<210> 34
 <211> 223
 <212> PRT
 <213> Zea mays

<400> 34

Ile Ala His Ser His Gly Ala Leu Val Leu Val Asp Asn Ser Ile Met
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 20 25 30
 His Ser Ala Thr Lys Phe Ile Ala Gly His Ser Asp Leu Met Ala Gly
 35 40 45
 Ile Leu Ala Val Lys Gly Glu Ser Leu Ala Lys Glu Val Gly Phe Leu
 50 55 60
 Gln Asn Ala Glu Gly Ser Gly Leu Ala Pro Phe Asp Cys Trp Leu Cys
 65 70 75 80
 Leu Arg Gly Ile Lys Thr Met Ala Leu Arg Val Glu Lys Gln Gln Ala
 85 90 95
 Asn Ala Gln Lys Ile Ala Glu Phe Leu Ala Ser His Pro Arg Val Lys
 100 105 110
 Gln Val Asn Tyr Ala Gly Leu Pro Asp His Pro Gly Arg Ala Leu His
 115 120 125
 Tyr Ser Gln Ala Lys Gly Ala Gly Ser Val Leu Ser Phe Leu Thr Gly
 130 135 140
 Ser Leu Ala Leu Ser Lys His Val Val Glu Thr Thr Lys Tyr Phe Ser
 145 150 155 160
 Val Thr Val Ser Phe Gly Ser Val Lys Ser Leu Ile Ser Leu Pro Cys
 165 170 175
 Phe Met Ser His Ala Ser Ile Pro Ala Ser Val Arg Glu Glu Arg Gly
 180 185 190
 Leu Thr Asp Asp Leu Val Arg Ile Ser Val Gly Ile Glu Asp Val Glu
 195 200 205
 Asp Leu Ile Ala Asp Leu Asp Arg Ala Leu Arg Thr Gly Pro Val
 210 215 220

<210> 35
 <211> 547
 <212> DNA
 <213> Oryza sativa

<220>
 <221> unsure
 <222> (260)

[illegible]

Figure 6

Figure 6 displays ten histograms showing the distribution of the number of nodes per cluster for different values of α . The x-axis for all plots is labeled "Nodes per Cluster" and ranges from 0 to 10. The y-axis is labeled "Frequency". The distributions are as follows:

- $\alpha = 0.0001$: A very narrow distribution centered at 1 node.
- $\alpha = 0.0005$: A narrow distribution centered at 1 node.
- $\alpha = 0.001$: A narrow distribution centered at 1 node.
- $\alpha = 0.005$: A narrow distribution centered at 1 node.
- $\alpha = 0.01$: A narrow distribution centered at 1 node.
- $\alpha = 0.05$: A narrow distribution centered at 1 node.
- $\alpha = 0.1$: A narrow distribution centered at 1 node.
- $\alpha = 0.5$: A broader distribution centered around 1-2 nodes.
- $\alpha = 1$: A broad distribution centered around 1-2 nodes.
- $\alpha = 10$: A very broad distribution ranging from 0 to 10 nodes.

[illegible][illegible][illegible]

Figure 6

Figure 6 displays ten histograms showing the distribution of the number of nodes per cluster for different values of α . The x-axis represents the number of nodes per cluster, ranging from 0 to 10. The y-axis represents the frequency or count of clusters, ranging from 0 to 10. The distributions are labeled as follows:

- (a) $\alpha = 0.0$: A single peak at 1 node.
- (b) $\alpha = 0.1$: A peak at 1 node with a small tail at 2 nodes.
- (c) $\alpha = 0.2$: A peak at 1 node with a larger tail at 2 nodes.
- (d) $\alpha = 0.3$: A peak at 1 node with a significant tail extending to 3 nodes.
- (e) $\alpha = 0.4$: A peak at 1 node with a tail extending to 4 nodes.
- (f) $\alpha = 0.5$: A peak at 1 node with a tail extending to 5 nodes.
- (g) $\alpha = 0.6$: A peak at 1 node with a tail extending to 6 nodes.
- (h) $\alpha = 0.7$: A peak at 1 node with a tail extending to 7 nodes.
- (i) $\alpha = 0.8$: A peak at 1 node with a tail extending to 8 nodes.
- (j) $\alpha = 0.9$: A peak at 1 node with a tail extending to 9 nodes.

The histograms illustrate how increasing α leads to a higher probability of nodes belonging to clusters of size greater than one.

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

<400> 36

Leu Met Ala Lys Leu Glu Lys Ala Asp Gln Ala Phe Cys Phe Thr Ser
1 5 10 15

Gly Met Ala Ala Leu Ala Ala Val Thr His Leu Leu Lys Ser Gly Gln
20 25 30

Glu Ile Val Ala Gly Glu Asp Ile Tyr Gly Gly Ser Asp Arg Leu Leu
35 40 45

Ser Gln Val Ala Pro Arg His Gly Ile Val Val Lys Arg Ile Asp Thr
50 55 60

Thr Lys Ile Ser Glu Val Thr Ser Ala Ile Gly
65 70 75

<210> 37

<211> 1733

<212> DNA

<213> Glycine max

<400> 37

| | | | | | | |
|-------------|-------------|-------------|------------|-------------|-------------|------|
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| cctgctccaa | acacatcaat | ttcaataatg | ttttcttctg | caatttctca | gaagcccttc | 120 |
| cttcagtcac | tcgtcattga | tcgttacgct | cagagcaca | ctgctgcaac | caggtgggag | 180 |
| tgcttggggg | ttacaagtc | agaaaatttc | agtaccaaga | gagtgttgcg | tgcagagggg | 240 |
| ttcaagttga | attgcttggg | tgaataatga | gagatggaag | tggagtcac | atcatcatct | 300 |
| ttggtggatg | atgctgccat | gagcttaagt | gaagaggatt | taggggagcc | tagtatttca | 360 |
| acaatgggtg | tgaatttcga | gagtaagttt | gatccttttg | gagcaattag | taccccgctt | 420 |
| taccaaagg | ctacttttaa | gcagccttct | gcaatagaaa | atgggtcccta | tgactatacc | 480 |
| agaagtggaa | atcctactcg | tgatgcttta | gaaagtttac | tagcaaagct | tgataaagca | 540 |
| gatatagccc | tgtgcttcac | cagtgggaatg | gctgctttga | gtgctgttgt | tcgtcttggt | 600 |
| ggaaactggg | aggaattgt | caccggagat | gatgtatatg | gtggctcaga | taggttgctg | 660 |
| tctcaagtag | ttccaaggac | tgggaattgtg | gtgaaacggg | taaatacatg | tgatctagat | 720 |
| gaggttgctg | ctgccattgg | actcaggact | aagcttgtgt | ggcttgagag | tccaaccaat | 780 |
| cctcggtctc | aaatttctga | tattcgaaaa | atatcagaga | tggctcattc | acatgggtgct | 840 |
| cttggtgttag | tggacaatag | tataatgtca | cctgtgttgt | ctcagccatt | ggaacttgga | 900 |
| gcagatatag | tcattgcactc | agctacaaaa | tttattgctg | gacatagtga | cattatggct | 960 |
| ggtgtgcttg | ctgtgaaggg | tgaagaattg | ggaaaggaaa | tgtatttctt | gcaaaatgca | 1020 |
| gaggggttcag | gcttagcacc | atttgactgt | tggctttgtt | tgcgaggaat | caagacaatg | 1080 |
| gcctgcgaa | ttgaaaagca | acaggataac | gcacagaaga | ttgcagagtt | ccttgccctcc | 1140 |
| catcctcgag | tgaagggaat | gaattatgct | ggcctgcctg | gtcatcctgg | tcgtgattta | 1200 |
| cactattctc | aggcaaagg | tgcaggatct | gtgcttagct | tcttgactgg | ttcattggca | 1260 |
| ctttcaaagc | atattgttga | aactaccaaa | tacttcagta | taaccgtcag | ctttgggagt | 1320 |
| gtgaagtccc | tcattagcat | gccatgcttt | atgtcacatg | caagcatacc | tgctgcagtt | 1380 |
| cgcgaggcca | gaggtttaac | tgaagatcct | gtacgaatat | ctgtgggaat | tgaggatgtg | 1440 |
| aatgatctca | ttgctgatct | tggcaatgca | cttagaactg | gacctcttta | atgtcttctc | 1500 |
| caccccccca | cccaaaaaga | aaaaaattca | tccttaagaa | gttggattag | catgttgagg | 1560 |
| atttgggagc | attgctatcc | tgtctttgga | ttcttgagag | tggaaacttg | aagtgttgct | 1620 |
| tatgtgcatg | taataaaatc | aatatttcct | gtaattttgt | tgtacaatt | gttatcctta | 1680 |
| ccttgcaata | tcattgcata | caagttacta | ttgaaaaaaa | aaaaaaaaaa | aaa | 1733 |

<210> 38

<211> 467

<212> PRT

<213> Glycine max

<400> 38
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Leu Gly Phe Asn Lys Ser Glu Asn Phe Ser Thr Lys Arg Val Leu Arg
35 40 45
Ala Glu Gly Phe Lys Leu Asn Cys Leu Val Glu Asn Arg Glu Met Glu
50 55 60
Val Glu Ser Ser Ser Ser Ser Leu Val Asp Asp Ala Ala Met Ser Leu
65 70 75 80
Ser Glu Glu Asp Leu Gly Glu Pro Ser Ile Ser Thr Met Val Met Asn
85 90 95
Phe Glu Ser Lys Phe Asp Pro Phe Gly Ala Ile Ser Thr Pro Leu Tyr
100 105 110
Gln Thr Ala Thr Phe Lys Gln Pro Ser Ala Ile Glu Asn Gly Pro Tyr
115 120 125
Asp Tyr Thr Arg Ser Gly Asn Pro Thr Arg Asp Ala Leu Glu Ser Leu
130 135 140
Leu Ala Lys Leu Asp Lys Ala Asp Arg Ala Leu Cys Phe Thr Ser Gly
145 150 155 160
Met Ala Ala Leu Ser Ala Val Val Arg Leu Val Gly Thr Gly Glu Glu
165 170 175
Ile Val Thr Gly Asp Asp Val Tyr Gly Gly Ser Asp Arg Leu Leu Ser
180 185 190
Gln Val Val Pro Arg Thr Gly Ile Val Val Lys Arg Val Asn Thr Cys
195 200 205
Asp Leu Asp Glu Val Ala Ala Ala Ile Gly Leu Arg Thr Lys Leu Val
210 215 220
Trp Leu Glu Ser Pro Thr Asn Pro Arg Leu Gln Ile Ser Asp Ile Arg
225 230 235 240
Lys Ile Ser Glu Met Ala His Ser His Gly Ala Leu Val Leu Val Asp
245 250 255
Asn Ser Ile Met Ser Pro Val Leu Ser Gln Pro Leu Glu Leu Gly Ala
260 265 270
Asp Ile Val Met His Ser Ala Thr Lys Phe Ile Ala Gly His Ser Asp
275 280 285
Ile Met Ala Gly Val Leu Ala Val Lys Gly Glu Lys Leu Gly Lys Glu
290 295 300
Met Tyr Phe Leu Gln Asn Ala Glu Gly Ser Gly Leu Ala Pro Phe Asp
305 310 315 320

0004157-004604

Cys Trp Leu Cys Leu Arg Gly Ile Lys Thr Met Ala Leu Arg Ile Glu
325 330 335

Lys Gln Gln Asp Asn Ala Gln Lys Ile Ala Glu Phe Leu Ala Ser His
340 345 350

Pro Arg Val Lys Glu Val Asn Tyr Ala Gly Leu Pro Gly His Pro Gly
355 360 365

Arg Asp Leu His Tyr Ser Gln Ala Lys Gly Ala Gly Ser Val Leu Ser
370 375 380

Phe Leu Thr Gly Ser Leu Ala Leu Ser Lys His Ile Val Glu Thr Thr
385 390 395 400

Lys Tyr Phe Ser Ile Thr Val Ser Phe Gly Ser Val Lys Ser Leu Ile
405 410 415

Ser Met Pro Cys Phe Met Ser His Ala Ser Ile Pro Ala Ala Val Arg
420 425 430

Glu Ala Arg Gly Leu Thr Glu Asp Leu Val Arg Ile Ser Val Gly Ile
435 440 445

Glu Asp Val Asn Asp Leu Ile Ala Asp Leu Gly Asn Ala Leu Arg Thr
450 455 460

Gly Pro Leu
465

<210> 39
<211> 637
<212> DNA
<213> Triticum aestivum

<220>
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gattatacta gaagtggcaa cectactcgt gatgttctcc agagccttat ggctaagctc 180
gagaaggcag accaagcatt ctgcttcact agtgggatgg catcactggg ctgcagtaac 240
acacctcctt caggctggac aagaaatagt tgctggagag gacatatatg gtgggtctgat 300
cgtctgctct cacaagttgt cccaagaaat ggaattgtag taaaacgggt cgatacaact 360
aaaattaacg acgtgactgc tgcacgagac ccttgactan actagtattg ttgaaancca 420
caatcctcgt caacaattac tgtataagaa atctcagga tactcatcca tggggactgg 480
tttgngggca annttcatgt ccanggcta cctggccnat aaantggggn antatgggag 540
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<210> 40
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<212> PRT
<213> Triticum aestivum

<220>
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<222> (77)

<220>
 <221> UNSURE
 <222> (99)

<400> 40

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Gly Ala Leu Ser Thr Pro Leu Tyr Gln Thr Ala Thr Phe Lys Gln Pro
 20 25 30

Ser Ala Thr Val Asn Gly Ala Tyr Asp Tyr Thr Arg Ser Gly Asn Pro
 35 40 45

Thr Arg Asp Val Leu Gln Ser Leu Met Ala Lys Leu Glu Lys Ala Asp
 50 55 60

Gln Ala Phe Cys Phe Thr Ser Gly Met Ala Ser Leu Xaa Ala Val Thr
 65 70 75 80

His Leu Leu Gln Ala Gly Gln Glu Ile Val Ala Gly Glu Asp Ile Tyr
 85 90 95

Gly Gly Xaa Asp Arg Leu Leu Ser Gln Val Val Pro Arg Asn Gly Ile
 100 105 110

Val Val Lys Arg Val Asp Thr Thr Lys Ile Asn Asp Val Thr Ala Ala
 115 120 125

Ser Asp Pro
 130

<210> 41
 <211> 464
 <212> PRT
 <213> Arabidopsis thaliana

<400> 41

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 1 5 10 15

Asp Leu Ser Asp Arg Gly Leu Ile Ser Lys Asn Ser Pro Thr Ser Val
 20 25 30

Ser Ile Ser Lys Val Pro Thr Trp Glu Lys Lys Gln Ile Ser Asn Arg
 35 40 45

Asn Ser Phe Lys Leu Asn Cys Val Met Glu Lys Ser Val Asp Gly Gln
 50 55 60

Thr His Ser Thr Val Asn Asn Thr Thr Asp Ser Leu Asn Thr Met Asn
 65 70 75 80

Ile Lys Glu Glu Ala Ser Val Ser Thr Leu Leu Val Asn Leu Asp Asn
 85 90 95

Lys Phe Asp Pro Phe Asp Ala Met Ser Thr Pro Leu Tyr Gln Thr Ala
 100 105 110

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Phe | Lys | Gln | Pro | Ser | Ala | Ile | Glu | Asn | Gly | Pro | Tyr | Asp | Tyr | Thr | 115 | 120 | 125 |
| Arg | Ser | Gly | Asn | Pro | Thr | Arg | Asp | Ala | Leu | Glu | Ser | Leu | Leu | Ala | Lys | 130 | 135 | 140 |
| Leu | Asp | Lys | Ala | Asp | Arg | Ala | Phe | Cys | Phe | Thr | Ser | Gly | Met | Ala | Ala | 145 | 150 | 155 |
| Leu | Ser | Ala | Val | Thr | His | Leu | Ile | Lys | Asn | Gly | Glu | Glu | Ile | Val | Ala | 165 | 170 | 175 |
| Gly | Asp | Asp | Val | Tyr | Gly | Gly | Ser | Asp | Arg | Leu | Leu | Ser | Gln | Val | Val | 180 | 185 | 190 |
| Pro | Arg | Ser | Gly | Val | Val | Val | Lys | Arg | Val | Asn | Thr | Thr | Lys | Leu | Asp | 195 | 200 | 205 |
| Glu | Val | Ala | Ala | Ala | Ile | Gly | Pro | Gln | Thr | Lys | Leu | Val | Trp | Leu | Glu | 210 | 215 | 220 |
| Ser | Pro | Thr | Asn | Pro | Arg | Gln | Gln | Ile | Ser | Asp | Ile | Arg | Lys | Ile | Ser | 225 | 230 | 235 |
| Glu | Met | Ala | His | Ala | Gln | Gly | Ala | Leu | Val | Leu | Val | Asp | Asn | Ser | Ile | 245 | 250 | 255 |
| Met | Ser | Pro | Val | Leu | Ser | Arg | Pro | Leu | Glu | Leu | Gly | Ala | Asp | Ile | Val | 260 | 265 | 270 |
| Met | His | Ser | Ala | Thr | Lys | Phe | Ile | Ala | Gly | His | Ser | Asp | Val | Met | Ala | 275 | 280 | 285 |
| Gly | Val | Leu | Ala | Val | Lys | Gly | Glu | Lys | Leu | Ala | Lys | Glu | Val | Tyr | Phe | 290 | 295 | 300 |
| Leu | Gln | Asn | Ser | Glu | Gly | Ser | Gly | Leu | Ala | Pro | Phe | Asp | Cys | Trp | Leu | 305 | 310 | 315 |
| Cys | Leu | Arg | Gly | Ile | Lys | Thr | Met | Ala | Leu | Arg | Ile | Glu | Lys | Gln | Gln | 325 | 330 | 335 |
| Glu | Asn | Ala | Arg | Lys | Ile | Ala | Met | Tyr | Leu | Ser | Ser | His | Pro | Arg | Val | 340 | 345 | 350 |
| Lys | Lys | Val | Tyr | Tyr | Ala | Gly | Leu | Pro | Asp | His | Pro | Gly | His | His | Leu | 355 | 360 | 365 |
| His | Phe | Ser | Gln | Ala | Lys | Gly | Ala | Gly | Ser | Val | Phe | Ser | Phe | Ile | Thr | 370 | 375 | 380 |
| Gly | Ser | Val | Ala | Leu | Ser | Lys | His | Leu | Val | Glu | Thr | Thr | Lys | Tyr | Phe | 385 | 390 | 395 |
| Ser | Ile | Ala | Val | Ser | Phe | Gly | Ser | Val | Lys | Ser | Leu | Ile | Ser | Met | Pro | 405 | 410 | 415 |
| Cys | Phe | Met | Ser | His | Ala | Ser | Ile | Pro | Ala | Glu | Val | Arg | Glu | Ala | Arg | 420 | 425 | 430 |

Gly Leu Thr Glu Asp Leu Val Arg Ile Ser Ala Gly Ile Glu Asp Val
435 440 445

Asp Asp Leu Ile Ser Asp Leu Asp Ile Ala Phe Lys Thr Phe Pro Leu
450 455 460

<210> 42
<211> 1113
<212> DNA
<213> Zea mays

<400> 42
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gtcgacaaca gctccgcgtt cccgatggag cccgaggtgc cgctcgtcat ccccgaggtc 180
aaccccagg ccattggcgaa cgtccgcctc gggcaggggg cgattgtggc aaatccgaat 240
tgctcgacca tcattgcct catggctgcc acgcccgtcc atcgccacgc taagggtgta 300
aggatggttg tcagcacata ccaagcagca agtgggtcgg gtgctgcggc aatggaagaa 360
ctcaagctgc agactcagga ggtcttgaa gggaggcgc caacatgcaa cattttcaaa 420
cagcagtatg cttttaatat attctcacac aatgcaccag ttcttgagaa tgggtataac 480
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gtaactgcga cttgcatacg ggttcctgtg atgcgcgcac atgctgaaa ggtcaatcta 600
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gttaccatta ttgatgaccg agcttccaat cgctttccta cacctctgga ggtatcagac 720
aaagatgacg tagcagtggg taggattcgt caggacttgt ccctggatgg taaccgaggg 780
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<211> 287
<212> PRT
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<400> 43
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Ala Val Ala Ser Gly Ala Val Val Val Asp Asn Ser Ser Ala Phe Arg
35 40 45
Met Glu Pro Glu Val Pro Leu Val Ile Pro Glu Val Asn Pro Glu Ala
50 55 60
Met Ala Asn Val Arg Leu Gly Gln Gly Ala Ile Val Ala Asn Pro Asn
65 70 75 80
Cys Ser Thr Ile Ile Cys Leu Met Ala Ala Thr Pro Leu His Arg His
85 90 95
Ala Lys Val Leu Arg Met Val Val Ser Thr Tyr Gln Ala Ala Ser Gly
100 105 110

Ala Gly Ala Ala Ala Met Glu Glu Leu Lys Leu Gln Thr Gln Glu Val
115 120 125

Leu Glu Gly Lys Ala Pro Thr Cys Asn Ile Phe Lys Gln Gln Tyr Ala
130 135 140

Phe Asn Ile Phe Ser His Asn Ala Pro Val Leu Glu Asn Gly Tyr Asn
145 150 155 160

Glu Glu Glu Met Lys Met Val Lys Glu Thr Arg Lys Ile Trp Asn Asp
165 170 175

Lys Glu Val Lys Val Thr Ala Thr Cys Ile Arg Val Pro Val Met Arg
180 185 190

Ala His Ala Glu Ser Val Asn Leu Gln Phe Glu Lys Pro Leu Asp Glu
195 200 205

Asp Thr Ala Arg Glu Ile Leu Arg Ala Ala Pro Gly Val Thr Ile Ile
210 215 220

Asp Asp Arg Ala Ser Asn Arg Phe Pro Thr Pro Leu Glu Val Ser Asp
225 230 235 240

Lys Asp Asp Val Ala Val Gly Arg Ile Arg Gln Asp Leu Ser Leu Asp
245 250 255

Gly Asn Arg Gly Leu Asp Ile Phe Val Cys Gly Asp Gln Ile Arg Lys
260 265 270

Gly Ala Ala Leu Asn Ala Val Gln Ile Ala Glu Met Leu Leu Lys
275 280 285

<210> 44
<211> 1402
<212> DNA
<213> Oryza sativa

<400> 44

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| caccgcccgc | acctcctcgg | cgctacccc | ggcggtggcc | gcgcgcgcgc | cccgtcgtcc | 120 |
| accgtgcgga | tggcgcttcg | ggaggacggg | ccgtcgggtg | cgatcgtggg | cgcgacgggg | 180 |
| gccgtcggcc | aggagtctct | ccgcgtcatc | tcctcccggg | gcttccccta | ccggagcctc | 240 |
| cgctcctcgc | ccagcgagcg | ctccgcgggg | aagcgctctc | cgttcgaggg | ccaggagtac | 300 |
| accgtccagg | acctcgccgc | gccggggcgc | ttcgacgggg | tggacatcgc | gctcttcagc | 360 |
| gccggcgggc | gggtcagccg | cgcccacgct | cccgcggccg | tcgccagcgc | cgccgtcgtc | 420 |
| gtggacaaca | gctccgcctt | ccggatggac | cccaggtgct | cgctcgtcat | ccccgaggtc | 480 |
| aatcccgagg | ccatggcgca | cgcccggtcg | ggaaaggggg | ctattgtggc | caaccggaac | 540 |
| tgttcaccca | tcctctgcct | catggctgcc | acacctctgc | accgccacgc | caaggtggta | 600 |
| aggatggttg | tcagcactta | ccaagcagca | agtgtgtctg | gggctgcggc | catggaagaa | 660 |
| ctcaaacttc | aaactcaaga | ggtcttggcg | gggaaagcac | caacatgcaa | cattttcagt | 720 |
| cagcagtatg | cttttaatat | attttcacat | aatgcaccaa | ttgttgaaaa | tgggtacaat | 780 |
| gaggaggaga | tgaagatggt | gaaggagacc | agaaaaatct | ggaatgataa | agatgtgaag | 840 |
| gtaactgcaa | cctgcatacg | agttcctgtg | atgcgtgcac | atgctgaaag | tgtgaatcta | 900 |
| cagtttgaaa | agccacttga | tgaggatact | gcaagggaag | tcttgagggc | agctgaaggt | 960 |
| gttaccatta | ttgatgaccg | tgcttccaat | cgcttcccca | cacctcttga | ggtatcggat | 1020 |
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| ctggacatat | ttgtttgtgg | agatcaaata | cgtaaagggtg | ctgcactcaa | tgctgtgcag | 1140 |
| attgctgaaa | tgctaactcaa | gtgattttct | tttctgtacc | tttctctcct | tgccctctct | 1200 |
| tgctctagtc | attgtttgac | ggatgtactc | tggttagtat | gagatcaatt | ttgatcatct | 1260 |

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<210> 45
 <211> 375
 <212> PRT
 <213> Oryza sativa

<400> 45
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 Ala Leu Arg Glu Asp Gly Pro Ser Val Ala Ile Val Gly Ala Thr Gly
 35 40 45
 Ala Val Gly Gln Glu Phe Leu Arg Val Ile Ser Ser Arg Gly Phe Pro
 50 55 60
 Tyr Arg Ser Leu Arg Leu Leu Ala Ser Glu Arg Ser Ala Gly Lys Arg
 65 70 75 80
 Leu Pro Phe Glu Gly Gln Glu Tyr Thr Val Gln Asp Leu Ala Ala Pro
 85 90 95
 Gly Ala Phe Asp Gly Val Asp Ile Ala Leu Phe Ser Ala Gly Gly Gly
 100 105 110
 Val Ser Arg Ala His Ala Pro Ala Ala Val Ala Ser Gly Ala Val Val
 115 120 125
 Val Asp Asn Ser Ser Ala Phe Arg Met Asp Pro Glu Val Pro Leu Val
 130 135 140
 Ile Pro Glu Val Asn Pro Glu Ala Met Ala His Val Arg Leu Gly Lys
 145 150 155 160
 Gly Ala Ile Val Ala Asn Pro Asn Cys Ser Thr Ile Ile Cys Leu Met
 165 170 175
 Ala Ala Thr Pro Leu His Arg His Ala Lys Val Val Arg Met Val Val
 180 185 190
 Ser Thr Tyr Gln Ala Ala Ser Gly Ala Gly Ala Ala Ala Met Glu Glu
 195 200 205
 Leu Lys Leu Gln Thr Gln Glu Val Leu Ala Gly Lys Ala Pro Thr Cys
 210 215 220
 Asn Ile Phe Ser Gln Gln Tyr Ala Phe Asn Ile Phe Ser His Asn Ala
 225 230 235 240
 Pro Ile Val Glu Asn Gly Tyr Asn Glu Glu Glu Met Lys Met Val Lys
 245 250 255
 Glu Thr Arg Lys Ile Trp Asn Asp Lys Asp Val Lys Val Thr Ala Thr
 260 265 270

0094457 031604

Cys Ile Arg Val Pro Val Met Arg Ala His Ala Glu Ser Val Asn Leu
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 Gln Phe Glu Lys Pro Leu Asp Glu Asp Thr Ala Arg Glu Ile Leu Arg
 290 295 300
 Ala Ala Glu Gly Val Thr Ile Ile Asp Asp Arg Ala Ser Asn Arg Phe
 305 310 315 320
 Pro Thr Pro Leu Glu Val Ser Asp Lys Asp Asp Val Ala Val Gly Arg
 325 330 335
 Ile Arg Gln Asp Leu Ser Gln Asp Asp Asn Lys Gly Leu Asp Ile Phe
 340 345 350
 Val Cys Gly Asp Gln Ile Arg Lys Gly Ala Ala Leu Asn Ala Val Gln
 355 360 365
 Ile Ala Glu Met Leu Leu Lys
 370 375

<210> 46
 <211> 1391
 <212> DNA
 <213> Glycine max

<400> 46
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<210> 47
 <211> 377
 <212> PRT
 <213> Glycine max

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<400> 47
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Arg Met Ser Leu Arg Glu Asn Gly Pro Ser Ile Ala Val Val Gly Val
      35           40           45

Thr Gly Ala Val Gly Gln Glu Phe Leu Ser Val Leu Ser Asp Arg Asp
      50           55           60

Phe Pro Tyr Arg Ser Ile His Met Leu Ala Ser Lys Arg Ser Ala Gly
      65           70           75           80

Arg Arg Ile Thr Phe Glu Asp Arg Asp Tyr Val Val Gln Glu Leu Thr
      85           90           95

Pro Glu Ser Phe Asp Gly Val Asp Ile Ala Leu Phe Ser Ala Gly Gly
      100          105          110

Ser Ile Ser Lys His Phe Gly Pro Ile Ala Val Asn Arg Gly Thr Val
      115          120          125

Val Val Asp Asn Ser Ser Ala Phe Arg Met Asn Glu Lys Val Pro Leu
      130          135          140

Val Ile Pro Glu Val Asn Pro Glu Ala Met Gln Asn Ile Lys Ala Gly
      145          150          155          160

Thr Gly Lys Gly Ala Leu Ile Ala Asn Pro Asn Cys Ser Thr Ile Ile
      165          170          175

Cys Leu Met Ala Ala Thr Pro Leu His Arg Arg Ala Lys Val Leu Arg
      180          185          190

Met Val Val Ser Thr Tyr Gln Ala Ala Ser Gly Ala Gly Ala Ala Ala
      195          200          205

Met Glu Glu Leu Glu Leu Gln Thr Arg Glu Val Leu Glu Gly Lys Pro
      210          215          220

Pro Thr Cys Lys Ile Phe Asn Arg Gln Tyr Ala Phe Asn Leu Phe Ser
      225          230          235          240

His Asn Ala Ser Val Leu Ser Asn Gly Tyr Asn Glu Glu Glu Met Lys
      245          250          255

Met Val Lys Glu Thr Arg Lys Ile Trp Asn Asp Lys Asp Val Lys Val
      260          265          270

Thr Ala Thr Cys Ile Arg Val Pro Ile Met Arg Ala His Ala Glu Ser
      275          280          285

Val Asn Leu Gln Phe Glu Arg Pro Leu Asp Glu Asp Thr Ala Arg Asp
      290          295          300

Ile Leu Lys Asn Ala Pro Gly Val Val Val Ile Asp Asp Arg Glu Ser
      305          310          315          320

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Asn His Phe Pro Thr Pro Leu Glu Val Ser Asn Lys Asp Asp Val Ala
325 330 335

Val Gly Arg Ile Arg Gln Asp Leu Ser Gln Asp Gly Asn Gln Gly Leu
340 345 350

Asp Ile Phe Val Cys Gly Asp Gln Ile Arg Lys Gly Ala Ala Leu Asn
355 360 365

Ala Ile Gln Ile Ala Glu Met Leu Leu
370 375

<210> 48

<211> 1470

<212> DNA

<213> Glycine max

<400> 48

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<210> 49

<211> 376

<212> PRT

<213> Glycine max

<400> 49

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Leu Pro Ala Arg Pro Lys Pro Thr Ser Ser Ser Ser Ser Arg Ile Arg
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Met Ser Leu Arg Glu Asn Gly Pro Ser Ile Ala Val Val Gly Val Thr
35 40 45

0001457 0001457

Gly Ala Val Gly Gln Glu Phe Leu Ser Val Leu Ser Asp Arg Asp Phe
50 55 60

Pro Tyr Arg Ser Ile His Met Leu Ala Ser Lys Arg Ser Ala Gly Arg
65 70 75 80

Arg Ile Thr Phe Glu Asp Arg Asp Tyr Val Val Gln Glu Leu Thr Pro
85 90 95

Glu Ser Phe Asp Gly Val Asp Ile Ala Leu Phe Ser Ala Gly Gly Ser
100 105 110

Ile Ser Lys His Phe Gly Pro Ile Ala Val Asn Arg Gly Thr Val Val
115 120 125

Val Asp Asn Ser Ser Ala Phe Arg Met Asp Glu Lys Val Pro Leu Val
130 135 140

Ile Pro Glu Val Asn Pro Glu Ala Met Gln Asn Ile Lys Ala Gly Thr
145 150 155 160

Gly Lys Gly Ala Leu Ile Ala Asn Pro Asn Cys Ser Thr Ile Arg Cys
165 170 175

Leu Lys Ala Ala Thr Pro Leu His Arg Arg Ala Lys Val Leu Arg Met
180 185 190

Val Val Ser Thr Tyr Gln Ala Ala Ser Gly Ala Gly Ala Ala Met
195 200 205

Glu Glu Leu Glu Leu Gln Thr Arg Glu Val Leu Glu Gly Lys Pro Pro
210 215 220

Thr Cys Lys Ile Phe Asn Arg Gln Tyr Ala Phe Asn Leu Phe Ser His
225 230 235 240

Asn Ala Ser Val Leu Ser Asn Gly Tyr Asn Glu Glu Glu Met Lys Met
245 250 255

Val Lys Glu Thr Arg Lys Ile Trp Asn Asp Lys Asp Val Lys Val Thr
260 265 270

Ala Thr Cys Ile Arg Val Pro Ile Met Arg Ala His Ala Glu Ser Val
275 280 285

Asn Leu Gln Phe Glu Arg Pro Leu Asp Glu Asp Thr Ala Arg Asp Ile
290 295 300

Leu Lys Asn Ala Pro Gly Val Val Val Ile Asp Asp Arg Glu Ser Asn
305 310 315 320

His Phe Pro Thr Pro Leu Glu Val Ser Asn Lys Asp Asp Val Ala Val
325 330 335

Gly Arg Ile Arg Gln Asp Leu Ser Gln Asp Gly Asn Gln Gly Leu Asp
340 345 350

Ile Phe Val Cys Gly Asp Gln Ile Arg Lys Gly Ala Ala Leu Asn Ala
355 360 365

Ile Gln Ile Ala Glu Met Leu Leu
370 375

<210> 50
<211> 1609
<212> DNA
<213> Triticum aestivum

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<210> 51
<211> 374
<212> PRT
<213> Triticum aestivum

<400> 51
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Leu Arg Glu Asp Gly Pro Ser Val Ala Ile Val Gly Ala Thr Gly Ala
35 40 45
Val Gly Gln Glu Phe Leu Arg Val Ile Thr Ala Arg Asp Phe Pro Tyr
50 55 60
Arg Ser Leu Arg Leu Leu Ala Ser Glu Arg Ser Ala Gly Lys Arg Ile
65 70 75 80
Asp Phe Glu Gly Arg Asp Tyr Thr Val Gln Asp Leu Ala Ala Pro Gly
85 90 95

Ala Phe Asp Gly Val Asp Ile Ala Leu Phe Ser Ala Gly Gly Ser Ile
100 105 110

Ser Arg Ala His Ala Pro Ala Ala Val Ala Ser Gly Ala Val Val Val
115 120 125

Asp Asn Ser Ser Ala Tyr Arg Met Asp Pro Asp Val Pro Leu Val Ile
130 135 140

Pro Glu Val Asn Pro Glu Ala Met Ala Asp Val Arg Leu Gly Lys Gly
145 150 155 160

Ala Ile Val Ala Asn Pro Asn Cys Ser Thr Ile Ile Cys Leu Met Ala
165 170 175

Val Thr Pro Leu His Arg His Ala Lys Val Lys Arg Met Val Val Ser
180 185 190

Thr Tyr Gln Ala Ala Ser Gly Ala Gly Ala Ala Ala Met Glu Glu Leu
195 200 205

Lys Leu Gln Thr Arg Glu Val Leu Glu Gly Lys Pro Pro Thr Cys Asn
210 215 220

Ile Phe Ser Gln Gln Tyr Ala Phe Asn Ile Phe Ser His Asn Ala Pro
225 230 235 240

Ile Val Glu Asn Gly Tyr Asn Glu Glu Glu Met Lys Met Val Lys Glu
245 250 255

Thr Arg Lys Ile Trp Asn Asp Lys Asp Val Arg Val Thr Ala Thr Cys
260 265 270

Ile Arg Val Pro Thr Met Arg Ala His Ala Glu Ser Val Asn Leu Gln
275 280 285

Phe Glu Lys Pro Leu Asp Glu Asp Thr Ala Arg Glu Ile Leu Arg Ala
290 295 300

Ala Pro Gly Val Thr Ile Ser Asp Asp Arg Ala Ala Asn Arg Phe Pro
305 310 315 320

Thr Pro Leu Glu Val Ser Asp Lys Asp Asp Val Ser Val Gly Arg Ile
325 330 335

Arg Gln Asp Leu Ser Gln Asp Asp Asn Arg Gly Leu Glu Leu Phe Val
340 345 350

Cys Gly Asp Gln Ile Arg Lys Gly Ala Ala Leu Asn Ala Val Gln Ile
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Ala Glu Met Leu Leu Lys
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<210> 52
<211> 340
<212> PRT
<213> Aquifex aeolicus

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Glu Gly Leu Ile
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 <211> 1727
 <212> DNA
 <213> Glycine max

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 <211> 505
 <212> PRT
 <213> Glycine max

<400> 54
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 35 40 45
 Phe Leu Pro Leu Lys Phe Lys Ala Thr Thr Lys Pro Arg Ala Leu Arg
 50 55 60

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Val | Leu | Ser | Gln | Asn | Ala | Val | Lys | Thr | Ser | Val | Glu | Asp | Thr | Lys | 65 | 70 | 75 | 80 |
| Asn | Ala | His | Phe | Gln | His | Cys | Phe | Thr | Lys | Ser | Glu | Asp | Gly | Tyr | Leu | 85 | 90 | 95 | |
| Tyr | Cys | Glu | Gly | Leu | Lys | Val | His | Asp | Ile | Met | Glu | Ser | Val | Glu | Arg | 100 | 105 | 110 | |
| Arg | Pro | Phe | Tyr | Leu | Tyr | Ser | Lys | Pro | Gln | Ile | Thr | Arg | Asn | Val | Glu | 115 | 120 | 125 | |
| Ala | Tyr | Lys | Asp | Ala | Leu | Glu | Gly | Leu | Asn | Ser | Ile | Ile | Gly | Tyr | Ala | 130 | 135 | 140 | |
| Ile | Lys | Ala | Asn | Asn | Asn | Leu | Lys | Ile | Leu | Glu | His | Leu | Arg | His | Leu | 145 | 150 | 155 | 160 |
| Gly | Cys | Gly | Ala | Val | Leu | Val | Ser | Gly | Asn | Glu | Leu | Lys | Leu | Ala | Leu | 165 | 170 | | 175 |
| Arg | Ala | Gly | Phe | Asp | Pro | Thr | Arg | Cys | Ile | Phe | Asn | Gly | Asn | Gly | Lys | 180 | 185 | | 190 |
| Ile | Leu | Glu | Asp | Leu | Val | Leu | Ala | Ala | Gln | Glu | Gly | Val | Phe | Val | Asn | 195 | 200 | | 205 |
| Ile | Asp | Ser | Glu | Phe | Asp | Leu | Glu | Asn | Ile | Val | Glu | Ala | Ala | Lys | Arg | 210 | 215 | | 220 |
| Ala | Gly | Lys | Lys | Val | Asn | Val | Leu | Leu | Arg | Ile | Asn | Pro | Asp | Val | Asp | 225 | 230 | 235 | 240 |
| Pro | Gln | Val | His | Pro | Tyr | Val | Ala | Thr | Gly | Asn | Lys | Asn | Ser | Lys | Phe | 245 | 250 | | 255 |
| Gly | Ile | Arg | Asn | Glu | Lys | Leu | Gln | Cys | Phe | Leu | Asp | Ala | Val | Lys | Glu | 260 | 265 | | 270 |
| His | Pro | Asn | Glu | Leu | Lys | Leu | Val | Gly | Ala | His | Cys | His | Leu | Gly | Ser | 275 | 280 | | 285 |
| Thr | Ile | Thr | Lys | Val | Asp | Ile | Phe | Arg | Asp | Ala | Ala | Thr | Ile | Met | Ile | 290 | 295 | 300 | |
| Asn | Tyr | Ile | Asp | Gln | Ile | Arg | Asp | Gln | Gly | Phe | Glu | Val | Asp | Tyr | Leu | 305 | 310 | 315 | 320 |
| Asn | Ile | Gly | Gly | Gly | Leu | Gly | Ile | Asp | Tyr | Tyr | His | Ser | Gly | Ala | Ile | 325 | 330 | | 335 |
| Leu | Pro | Thr | Pro | Arg | Asp | Leu | Ile | Asp | Thr | Val | Arg | Asp | Leu | Val | Ile | 340 | 345 | | 350 |
| Ser | Arg | Gly | Leu | Asn | Leu | Ile | Ile | Glu | Pro | Gly | Arg | Ser | Leu | Ile | Ala | 355 | 360 | | 365 |
| Asn | Thr | Cys | Cys | Leu | Val | Asn | Arg | Val | Thr | Gly | Val | Lys | Thr | Asn | Gly | 370 | 375 | 380 | |

Val Arg Glu Leu Val Leu Ser Arg Asp Leu Thr Leu Ile Ile Glu Pro
35 40 45

Gly Arg Ser Leu Ile Ala Asn Thr Cys Cys Phe Val Asn Lys Val Thr
50 55 60

Gly Val Lys Ser Asn Gly Thr Lys Asn Phe Ile Val Val Asp Gly Ser
65 70 75 80

Met Ala Glu Leu Ile Arg Pro Ser Leu Tyr Gly Ala Tyr Gln His Ile
85 90 95

Glu Leu Val Ser Pro Ser Pro Gly Ala Glu Val Ala Thr Phe Asp Ile
100 105 110

Val Gly Pro Val Cys Glu Ser Ala Asp Phe Leu Gly Lys Asp Arg Glu
115 120 125

Leu Pro Thr Pro Asp Lys Gly Ala Gly Leu Val Val His Asp Ala Gly
130 135 140

Ala Tyr Cys Met Ser Met Ala Ser Thr Tyr Asn Leu Lys Met Arg Pro
145 150 155 160

Ala Glu Tyr Trp Val Glu Asp Asp Gly Ser Ile Val Lys Ile Arg His
165 170 175

Gly Glu Thr Phe Asp Asp Tyr Met Lys Phe Phe Asp Gly Leu Pro Ala
180 185 190

<210> 57
<211> 526
<212> PRT
<213> Arabidopsis thaliana

<400> 57
Met Gly Gln Thr Asn Ser Glu Thr Gln Gln Ala Arg Leu Tyr Thr Gln
1 5 10 15

Asn Ser Gln Lys Gln Leu Leu Arg Ser Phe Leu Leu Leu His Leu Ile
20 25 30

Phe Gly Tyr Gln Ser His Lys Thr Leu Arg Met Ala Ala Ala Thr Gln
35 40 45

Phe Leu Ser Gln Pro Ser Ser Leu Asn Pro His Gln Leu Lys Asn Gln
50 55 60

Thr Ser Gln Arg Ser Arg Ser Ile Pro Val Leu Ser Leu Lys Ser Thr
65 70 75 80

Leu Lys Pro Leu Lys Arg Leu Ser Val Lys Ala Ala Val Val Ser Gln
85 90 95

Asn Ser Ser Lys Thr Val Thr Lys Phe Asp His Cys Phe Lys Lys Ser
100 105 110

Ser Asp Gly Phe Leu Tyr Cys Glu Gly Thr Lys Val Glu Asp Ile Met
115 120 125

Val Gly Pro Val Cys Glu Ser Ala Asp Phe Leu Gly Lys Asp Arg Glu
 450 455 460

Leu Pro Thr Pro Pro Gln Gly Ala Gly Leu Val Val His Asp Ala Gly
 465 470 475 480

Ala Tyr Cys Met Ser Met Ala Ser Thr Tyr Asn Leu Lys Met Arg Pro
 485 490 495

Pro Glu Tyr Trp Val Glu Glu Asp Gly Ser Ile Thr Lys Ile Arg His
 500 505 510

Ala Glu Thr Phe Asp Asp His Leu Arg Phe Phe Glu Gly Leu
 515 520 525

<210> 58
 <211> 1143
 <212> DNA
 <213> Oryza sativa

<400> 58
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 catccacctc accaagggcc tccccctcgg ctccggcctc ggctcctccg ccgcctccgc 120
 cgccgccgct gccaaaggccg ttgacgccct cttcggctcc ctctacacc aagatgacct 180
 cgctctcgcg ggctcgcagt ccgagaaaagc cgtcagtggc ttccacgccg acaacatcgc 240
 cccggccatc ctcggcggct tcgtcctcgt ccgcagctac gaccccttcc acctcatccc 300
 gctctcctcc ccacctgccc tccgcctcca cttcgtcctc gtcacgcccg acttcgaggc 360
 gccaccagc aagatgcgtg ccgcgctgcc caaacagggtg gccgtccacc agcacgtccg 420
 caactccagc caagcggccg cgcttgctgc cgctgtgctg caaggggacg ccaccctcat 480
 cggctccgca atgtcctccg acggcatcgt ggagccaacc agggcgccgc tgattcctgg 540
 catggctgcg gtcaaggccg cggcggttga agctggggca ttgggctgca ccacagtg 600
 agcagggcca actgctgttg ctgtcattga cggggaggag aagggcgagg aggttggccg 660
 gaggatggtg gaggcattcg ccaatgccg caatctcaaa gcaacagcta ctgttgetca 720
 gctcgataga gttggtgcca gggttatctc tacctccact ttggagtagg aagatctggg 780
 aggactgctc cggtaggtca aatttggaaat ggctcacatg gacactagtg ggaggagaag 840
 aaggggggat tgggtgtgtt tgtaattcct gggctgacca gaacgattgt cagtcagttg 900
 ggttgatgaat tgtgtgatgt agtagcaaac tgattcgtgc cggcaattga attgcaataa 960
 gctagtgggt gcagcatcac ctggcgaggg gtagctagga gatgcagaaa cagcattttg 1020
 acatgtgtgg gtgttgacat gcaacgaata aaatgaatga agctgaattg gggtttaaaa 1080
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaata 1140
 aaa 1143

<210> 59
 <211> 255
 <212> PRT
 <213> Oryza sativa

<400> 59
 His Glu Val Ala Ala Ile Ala Ala Leu Arg Ala Leu Asp Val Lys Ser
 1 5 10 15

His Ala Val Ser Ile His Leu Thr Lys Gly Leu Pro Leu Gly Ser Gly
 20 25 30

Leu Gly Ser Ser Ala Ala Ser Ala Ala Ala Ala Lys Ala Val Asp
 35 40 45

Ala Leu Phe Gly Ser Leu Leu His Gln Asp Asp Leu Val Leu Ala Gly
 50 55 60

00031457 081604

Leu Glu Ser Glu Lys Ala Val Ser Gly Phe His Ala Asp Asn Ile Ala
65 70 75 80

Pro Ala Ile Leu Gly Gly Phe Val Leu Val Arg Ser Tyr Asp Pro Phe
85 90 95

His Leu Ile Pro Leu Ser Ser Pro Pro Ala Leu Arg Leu His Phe Val
100 105 110

Leu Val Thr Pro Asp Phe Glu Ala Pro Thr Ser Lys Met Arg Ala Ala
115 120 125

Leu Pro Lys Gln Val Ala Val His Gln His Val Arg Asn Ser Ser Gln
130 135 140

Ala Ala Ala Leu Val Ala Ala Val Leu Gln Gly Asp Ala Thr Leu Ile
145 150 155 160

Gly Ser Ala Met Ser Ser Asp Gly Ile Val Glu Pro Thr Arg Ala Pro
165 170 175

Leu Ile Pro Gly Met Ala Ala Val Lys Ala Ala Ala Leu Glu Ala Gly
180 185 190

Ala Leu Gly Cys Thr Ile Ser Gly Ala Gly Pro Thr Ala Val Ala Val
195 200 205

Ile Asp Gly Glu Glu Lys Gly Glu Glu Val Gly Arg Arg Met Val Glu
210 215 220

Ala Phe Ala Asn Ala Gly Asn Leu Lys Ala Thr Ala Thr Val Ala Gln
225 230 235 240

Leu Asp Arg Val Gly Ala Arg Val Ile Ser Thr Ser Thr Leu Glu
245 250 255

<210> 60
<211> 370
<212> PRT
<213> Arabidopsis thaliana

<400> 60
Met Ala Ser Leu Cys Phe Gln Ser Pro Ser Lys Pro Ile Ser Tyr Phe
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Gln Pro Lys Ser Asn Pro Ser Pro Pro Leu Phe Ala Lys Val Ser Val
20 25 30

Phe Arg Cys Arg Ala Ser Val Gln Thr Leu Val Ala Val Glu Pro Glu
35 40 45

Pro Val Phe Val Ser Val Lys Thr Phe Ala Pro Ala Thr Val Ala Asn
50 55 60

Leu Gly Pro Gly Phe Asp Phe Leu Gly Cys Ala Val Asp Gly Leu Gly
65 70 75 80

Asp His Val Thr Leu Arg Val Asp Pro Ser Val Arg Ala Gly Glu Val
85 90 95

Ser Ile Ser Glu Ile Thr Gly Thr Thr Thr Lys Leu Ser Thr Asn Pro
100 105 110

Leu Arg Asn Cys Ala Gly Ile Ala Ala Ile Ala Thr Met Lys Met Leu
115 120 125

Gly Ile Arg Ser Val Gly Leu Ser Leu Asp Leu His Lys Gly Leu Pro
130 135 140

Leu Gly Ser Gly Leu Gly Ser Ser Ala Ala Ser Ala Ala Ala Ala Ala
145 150 155 160

Val Ala Val Asn Glu Ile Phe Gly Arg Lys Leu Gly Ser Asp Gln Leu
165 170 175

Val Leu Ala Gly Leu Glu Ser Glu Ala Lys Val Ser Gly Tyr His Ala
180 185 190

Asp Asn Ile Ala Pro Ala Ile Met Gly Gly Phe Val Leu Ile Arg Asn
195 200 205

Tyr Glu Pro Leu Asp Leu Lys Pro Leu Lys Phe Pro Ser Asp Lys Asp
210 215 220

Leu Phe Phe Val Leu Val Ser Pro Glu Phe Glu Ala Pro Thr Lys Lys
225 230 235 240

Met Arg Ala Ala Leu Pro Thr Glu Ile Pro Met Val His His Val Trp
245 250 255

Asn Ser Ser Gln Ala Ala Ala Leu Val Ala Ala Val Leu Glu Gly Asp
260 265 270

Ala Val Met Leu Gly Lys Ala Leu Ser Ser Asp Lys Ile Val Glu Pro
275 280 285

Thr Arg Ala Pro Leu Ile Pro Gly Met Glu Ala Val Lys Lys Ala Ala
290 295 300

Leu Glu Ala Gly Ala Phe Gly Cys Thr Ile Ser Gly Ala Gly Pro Thr
305 310 315 320

Ala Val Ala Val Ile Asp Ser Glu Glu Lys Gly Gln Val Ile Gly Glu
325 330 335

Lys Met Val Glu Ala Phe Trp Lys Val Gly His Leu Lys Ser Val Ala
340 345 350

Ser Val Lys Lys Leu Asp Lys Val Gly Ala Arg Leu Val Asn Ser Val
355 360 365

Ser Arg
370

<210> 61
<211> 1508
<212> DNA
<213> Zea mays

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<400> 61
aaggatggcg tcgtgggtcgt cgcctcagc cgcgcgcaac gccgcctcgg gcgcccgcatt 60
cgcccccttc ccgagcggag ggcagcggct cgcgcgctgt ccgtcgctcg tccgcggaac 120
tcccgcctcg acgtcgtcc tcaggtcca cccggacggc cgtggccatg gcctcctcgc 180
gcacaccggc cctctcctt cctcgcggtg ccgcgcgctc gccgcgagg tcgggggcct 240
caacatcgcc aacgacgtca cccagctcat cggcaacaca ccaatggtgt atctcaacaa 300
cgtcgtcaag ggctctgtcg ccaatgtcgc tgctaagctc gagattatgg agccctgctg 360
tagcgtcaag gacaggatag ggtacagtat gataaatgat gctgaacaga agggcttgat 420
tactcctgga aagagtgttt tgggtggaagc aacaagtgga aacacaggca ttggtcttgc 480
tttcattgct gcttccaaag gatataagct gataactaaca atgccttcat caatgagcat 540
ggagagaaga gtcctcctta gagcttttgg tgccgaactt gtccttactg atgctgcaaa 600
agggatgaaa ggggccttag ataaggctac agagatttta aacaagacac caaattctta 660
catgcttcaa cagttcgata accctgccaa cctcaggta cattatgaga ctactggtcc 720
agagatctgg gaggattcaa aggggaaggt ggaatatattc attggtggaa ttggaacagg 780
ggggacaata tctggtgccg gccgttttct caaggagaaa aatcctggaa ttaaggttat 840
tggtattgag ctttctgaaa gtaacatact ctccggtgga aaacctggtc cacataagat 900
ccagggaatc ggcgaggat ttgttccaag gaacttggat agcgatattc ttgatgaagt 960
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accagagaat gctggaaagc tgatagtggg tgtgtttccg agcttcggcg agaggtacct 1140
ttcatctgtc ctctatcagt ccataagaga agaattgtgag aacatgcaac ctgagccatg 1200
agggagccgt cactttaagc gggcatagta aatgtttctg aaataagacg cgtagccagc 1260
atcagtttgc tccacttgga atcatttggc catgctcact ctatcctttc gctagcctct 1320
atgaccggac ctaaactggt gtgtgagaaa catccacgac tgcctccca actgctttcc 1380
taaagccaaa cgataaact ctcaataatt gtctatacga ttgaagctga tttgattggt 1440
aattgtaaac agcttgtctt tggatctttg aagtcaaaca aagtcagttg gttgaatcaa 1500
aaaaaaaa 1508

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<210> 62
<211> 398
<212> PRT
<213> Zea mays

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<400> 62
Met Ala Ser Trp Ser Ser Pro Ser Ala Ala Ala Asn Ala Ala Ser Gly
  1             5             10             15

Ala Arg Phe Gly Pro Phe Pro Ser Gly Gly Gln Arg Leu Ala Pro Cys
          20             25             30

Pro Ser Leu Val Arg Gly Thr Pro Ala Pro Thr Leu Val Leu Arg Leu
      35             40             45

His Pro Asp Gly Arg Gly His Gly Leu Leu Ala His Thr Gly Pro Ser
      50             55             60

Pro Ser Ser Arg Cys Arg Ala Val Ala Ala Glu Val Gly Gly Leu Asn
      65             70             75             80

Ile Ala Asn Asp Val Thr Gln Leu Ile Gly Asn Thr Pro Met Val Tyr
          85             90             95

Leu Asn Asn Val Val Lys Gly Ser Val Ala Asn Val Ala Ala Lys Leu
      100             105             110

Glu Ile Met Glu Pro Cys Cys Ser Val Lys Asp Arg Ile Gly Tyr Ser
      115             120             125

Met Ile Asn Asp Ala Glu Gln Lys Gly Leu Ile Thr Pro Gly Lys Ser
      130             135             140

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Val Leu Val Glu Ala Thr Ser Gly Asn Thr Gly Ile Gly Leu Ala Phe
145 150 155 160

Ile Ala Ala Ser Lys Gly Tyr Lys Leu Ile Leu Thr Met Pro Ser Ser
165 170 175

Met Ser Met Glu Arg Arg Val Leu Leu Arg Ala Phe Gly Ala Glu Leu
180 185 190

Val Leu Thr Asp Ala Ala Lys Gly Met Lys Gly Ala Leu Asp Lys Ala
195 200 205

Thr Glu Ile Leu Asn Lys Thr Pro Asn Ser Tyr Met Leu Gln Gln Phe
210 215 220

Asp Asn Pro Ala Asn Pro Gln Val His Tyr Glu Thr Thr Gly Pro Glu
225 230 235 240

Ile Trp Glu Asp Ser Lys Gly Lys Val Asp Ile Phe Ile Gly Gly Ile
245 250 255

Gly Thr Gly Gly Thr Ile Ser Gly Ala Gly Arg Phe Leu Lys Glu Lys
260 265 270

Asn Pro Gly Ile Lys Val Ile Gly Ile Glu Pro Ser Glu Ser Asn Ile
275 280 285

Leu Ser Gly Gly Lys Pro Gly Pro His Lys Ile Gln Gly Ile Gly Ala
290 295 300

Gly Phe Val Pro Arg Asn Leu Asp Ser Asp Ile Leu Asp Glu Val Ile
305 310 315 320

Glu Ile Ser Ser Asp Glu Ala Val Glu Thr Ala Lys Gln Leu Ala Val
325 330 335

Gln Glu Gly Leu Leu Val Gly Ile Ser Ser Gly Ala Ala Ala Ala Ala
340 345 350

Ala Ile Lys Val Ala Lys Arg Pro Glu Asn Ala Gly Lys Leu Ile Val
355 360 365

Val Val Phe Pro Ser Phe Gly Glu Arg Tyr Leu Ser Ser Val Leu Tyr
370 375 380

Gln Ser Ile Arg Glu Glu Cys Glu Asn Met Gln Pro Glu Pro
385 390 395

<210> 63
<211> 1522
<212> DNA
<213> Oryza sativa

<400> 63
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aagatggcgt cgtggtcgtc gcccgtcgcc gccgccgct tgcaggtcca tttcgggtcc 120
tctgtgttct tctccgcccg atcgccacga cagaccctcc tctaccacc tctcgcccgc 180
aacctacac tgaccatcca gccccggccc catcccttcc ggaacatcaa ctctcctcc 240
tctccagct ggatgtgcca cgccgtcgcc gccgaggtcg agggcctcaa catcgccgac 300

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gacgtcaccc agctcatcgg caagactcca atggtatata tcaacaacat cgtcaagggg 360
tgtgttgcca atgtcgtgc taagctcgag attatggagc cctgttgagc tgtcaaggag 420
aggataggat acagtatgat ttctgatgag gaagagaaag gcttgataac tcctggaaag 480
agtgttttgg tggaaccaac aagtggaaat acaggcattg gtcttgccct cattgctgct 540
tccagaggat ataaattaat attgaccatg cctgcatcaa tgagcatgga gagaagagtt 600
ctactcaaag cttttggcgc tgaacttgct cttactgatg ccgcaaaagg gatgaagggg 660
gctgtagata aggctacaga gattttaaat aagacacctg atgcctatat gctgcagcag 720
tttgacaacc ctgccaaacc aaagggtacat tatgagacta ctgggccaga aatctgggag 780
gattctaaag ggaaggtgga tgtattcatt ggtggaattg gaacagggtg aacaatatct 840
ggtgctggcc gtttcctgaa agagaaaaat cctggaatta aggttattgg tattgagcct 900
tctgagagta acatactctc tggtggaaaa cctggcccac ataagattca aggcattggg 960
gcaggatttg ttccaaggaa cttggatagt gaagttctcg atgaagtgat tgagatatct 1020
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atttcatctg gggcagcagc agcagctgcc attaaagttg caaaaagacc agaaaatgct 1140
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tttcagtcga taagagaaga atgtgagaag ttgcaacctg aaccatgagc ctaacttcag 1260
tgttcacaac atcataattg tttctgagat ttctggccat tagttttttt ttctgagaag 1320
tatcatacca ctccatagct gtttgttcga taaataaaac agttaccttt gcacttataa 1380
tgaggcttgt gagggactg tgaatttct ctgaacatct tctactcttc tcttttatcc 1440
ttaaataaat ctgggagcag tttgtaatac atacgtaa at ttaaagctgg gtgtttggta 1500
attgtaaaaa aaaaaaaaaa aa 1522

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<210> 64
 <211> 415
 <212> PRT
 <213> Oryza sativa

<400> 64
 Ala Arg Gly Ser Asn Tyr Gly Thr Thr Pro Leu Ser Asn Thr Ser Glu
 1 5 10 15
 Ser Glu Gln Arg Lys Met Ala Ser Trp Ser Ser Pro Val Ala Ala Ala
 20 25 30
 Ala Leu Gln Val His Phe Gly Ser Ser Cys Phe Phe Ser Ala Arg Ser
 35 40 45
 Pro Arg Gln Thr Leu Leu Leu Pro Pro Leu Ala Arg Asn Pro Thr Leu
 50 55 60
 Thr Ile Gln Pro Arg Pro His Pro Phe Arg Asn Ile Asn Ser Ser Ser
 65 70 75 80
 Ser Ser Ser Trp Met Cys His Ala Val Ala Ala Glu Val Glu Gly Leu
 85 90 95
 Asn Ile Ala Asp Asp Val Thr Gln Leu Ile Gly Lys Thr Pro Met Val
 100 105 110
 Tyr Leu Asn Asn Ile Val Lys Gly Cys Val Ala Asn Val Ala Ala Lys
 115 120 125
 Leu Glu Ile Met Glu Pro Cys Cys Ser Val Lys Asp Arg Ile Gly Tyr
 130 135 140
 Ser Met Ile Ser Asp Ala Glu Glu Lys Gly Leu Ile Thr Pro Gly Lys
 145 150 155 160
 Ser Val Leu Val Glu Pro Thr Ser Gly Asn Thr Gly Ile Gly Leu Ala
 165 170 175

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Phe | Ile | Ala | Ala | Ser | Arg | Gly | Tyr | Lys | Leu | Ile | Leu | Thr | Met | Pro | Ala | |
| | | 180 | | | | | | 185 | | | | | 190 | | | |
| Ser | Met | Ser | Met | Glu | Arg | Arg | Val | Leu | Leu | Lys | Ala | Phe | Gly | Ala | Glu | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Leu | Val | Leu | Thr | Asp | Ala | Ala | Lys | Gly | Met | Lys | Gly | Ala | Val | Asp | Lys | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Ala | Thr | Glu | Ile | Leu | Asn | Lys | Thr | Pro | Asp | Ala | Tyr | Met | Leu | Gln | Gln | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Phe | Asp | Asn | Pro | Ala | Asn | Pro | Lys | Val | His | Tyr | Glu | Thr | Thr | Gly | Pro | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Glu | Ile | Trp | Glu | Asp | Ser | Lys | Gly | Lys | Val | Asp | Val | Phe | Ile | Gly | Gly | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Ile | Gly | Thr | Gly | Gly | Thr | Ile | Ser | Gly | Ala | Gly | Arg | Phe | Leu | Lys | Glu | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Lys | Asn | Pro | Gly | Ile | Lys | Val | Ile | Gly | Ile | Glu | Pro | Ser | Glu | Ser | Asn | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Ile | Leu | Ser | Gly | Gly | Lys | Pro | Gly | Pro | His | Lys | Ile | Gln | Gly | Ile | Gly | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Ala | Gly | Phe | Val | Pro | Arg | Asn | Leu | Asp | Ser | Glu | Val | Leu | Asp | Glu | Val | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Ile | Glu | Ile | Ser | Ser | Asp | Glu | Ala | Val | Glu | Thr | Ala | Lys | Gln | Leu | Ala | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Leu | Gln | Glu | Gly | Leu | Leu | Val | Gly | Ile | Ser | Ser | Gly | Ala | Ala | Ala | Ala | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Ala | Ala | Ile | Lys | Val | Ala | Lys | Arg | Pro | Glu | Asn | Ala | Gly | Lys | Leu | Val | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Val | Val | Val | Phe | Pro | Ser | Phe | Gly | Glu | Arg | Tyr | Leu | Ser | Ser | Ile | Leu | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Phe | Gln | Ser | Ile | Arg | Glu | Glu | Cys | Glu | Lys | Leu | Gln | Pro | Glu | Pro | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |

<210> 65

<212> PRT

<213> Spinacia oleracea

Met Ala Ser Leu Val Asn Asn Ala Tyr Ala Ala Ile Arg Thr Ser Lys
1 5 10 15

Ile Thr Cys Lys Ala Val Ser Leu Ser Pro Pro Ser Thr Ile Glu Gly
50 55 60

Leu Asn Ile Ala Glu Asp Val Ser Gln Leu Ile Gly Lys Thr Pro Met
65 70 75 80

Val Tyr Leu Asn Asn Val Ser Lys Gly Ser Val Ala Asn Ile Ala Ala
85 90 95

Lys Leu Glu Ser Met Glu Pro Cys Cys Ser Val Lys Asp Arg Ile Gly
100 105 110

Tyr Ser Met Ile Asp Asp Ala Glu Gln Lys Gly Val Ile Thr Pro Gly
115 120 125

Lys Thr Thr Leu Val Glu Pro Thr Ser Gly Asn Thr Gly Ile Gly Leu
130 135 140

Ala Phe Ile Ala Ala Ala Arg Gly Tyr Lys Ile Thr Leu Thr Met Pro
145 150 155 160

Ala Ser Met Ser Met Glu Arg Arg Val Ile Leu Lys Ala Phe Gly Ala
165 170 175

Glu Leu Val Leu Thr Asp Pro Ala Lys Gly Met Lys Gly Ala Val Glu
180 185 190

Lys Ala Glu Glu Ile Leu Lys Lys Thr Pro Asp Ser Tyr Met Leu Gln
195 200 205

Gln Phe Asp Asn Pro Ala Asn Pro Lys Ile His Tyr Glu Thr Thr Gly
210 215 220

Pro Glu Ile Trp Glu Asp Thr Lys Gly Lys Val Asp Ile Phe Val Ala
225 230 235 240

Gly Ile Gly Thr Gly Gly Thr Ile Ser Gly Val Gly Arg Tyr Leu Lys
245 250 255

Glu Arg Asn Pro Gly Val Gln Val Ile Gly Ile Glu Pro Thr Glu Ser
260 265 270

Asn Ile Leu Ser Gly Gly Lys Pro Gly Pro His Lys Ile Gln Gly Leu
275 280 285

Gly Ala Gly Phe Val Pro Ser Asn Leu Asp Leu Gly Val Met Asp Glu
290 295 300

Val Ile Glu Val Ser Ser Glu Glu Ala Val Glu Met Ala Lys Gln Leu
305 310 315 320

Ala Met Lys Glu Gly Leu Leu Val Gly Ile Ser Ser Gly Ala Ala Ala
325 330 335

Ala Ala Ala Val Arg Ile Gly Lys Arg Pro Glu Asn Ala Gly Lys Leu
340 345 350

Ile Ala Val Val Phe Pro Ser Phe Gly Glu Arg Tyr Leu Ser Ser Ile
355 360 365

Glu Ser Asn Val Leu Ser Gly Gly Lys Pro Gly Pro His Lys Ile Gln
 275 280 285
 Gly Ile Gly Ala Gly Phe Ile Pro Gly Asn Leu Asp Gln Asp Val Met
 290 295 300
 Asp Glu Val Ile Glu Ile Ser Ser Asp Glu Ala Val Glu Thr Ala Arg
 305 310 315 320
 Thr Leu Ala Leu Gln Glu Gly Leu Leu Val Gly Ile Ser Ser Gly Ala
 325 330 335
 Ala Ala Leu Ala Ala Ile Gln Val Gly Lys Arg Pro Glu Asn Ala Gly
 340 345 350
 Lys Leu Ile Gly Val Val Phe Pro Ser Tyr Gly Glu Arg Tyr Leu Ser
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 Ser Ile Leu Phe Gln Ser Ile Arg Glu Glu Cys Glu Lys Met Lys Pro
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 Glu Leu
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<210> 67
 <211> 1581
 <212> DNA
 <213> Zea mays

<400> 67
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 tctcgctatt ccgacgcatg gctgggcgct cgctgacggg gatcgagggc gcctccggcg 240
 gctccgaacg agatctcagc gcctccgcag tctccgtgga ggccctggac tccgtcgct 300
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 ctggtgagga catatatggt ggttctgac gtctactctc gcaagttgtg ccaagaaatg 660
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<210> 68
 <211> 470
 <212> PRT
 <213> Zea mays

<400> 68

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Gln Ser Phe Arg Val Pro Pro Leu Arg Leu Ser Leu Phe Arg Arg Met
          35          40          45

Ala Gly Arg Ser Leu Thr Val Ile Ala Gly Ala Ser Gly Gly Ser Glu
          50          55          60

Arg Asp Leu Ser Ala Ser Ala Val Ser Val Glu Ala Leu Asp Ser Val
          65          70          75          80

Ala Ser Asp Ser Asp Leu Glu Thr Lys Glu Pro Ser Val Ser Thr Met
          85          90          95

Leu Thr Ser Phe Glu Asn Ser Phe Asp Lys Tyr Gly Ala Leu Ser Thr
          100          105          110

Pro Leu Tyr Gln Thr Ala Thr Phe Lys Gln Pro Ser Ala Thr Asp Tyr
          115          120          125

Gly Thr Tyr Asp Tyr Thr Arg Ser Gly Asn Pro Thr Arg Asp Val Leu
          130          135          140

Gln Ser Leu Met Ala Lys Leu Glu Lys Ala Asp Gln Ala Phe Cys Phe
          145          150          155          160

Thr Ser Gly Met Ala Ala Leu Ala Ala Val Lys His Leu Leu Gln Ala
          165          170          175

Gly Gln Glu Ile Val Ala Gly Glu Asp Ile Tyr Gly Gly Ser Asp Arg
          180          185          190

Leu Leu Ser Gln Val Val Pro Arg Asn Gly Ile Val Val Lys Arg Val
          195          200          205

Asp Thr Thr Lys Ile Ser Asp Val Val Ser Ala Ile Gly Pro Ser Thr
          210          215          220

Arg Leu Val Trp Leu Glu Ser Pro Thr Asn Pro Arg Gln Gln Ile Thr
          225          230          235          240

Asp Ile Lys Thr Ile Ser Glu Ile Ala His Ser His Gly Ala Leu Val
          245          250          255

Leu Val Asp Asn Ser Ile Met Ser Pro Val Leu Ser Arg Pro Ile Glu
          260          265          270

Leu Gly Ala Asp Ile Val Met His Ser Ala Thr Lys Phe Ile Ala Gly
          275          280          285
  
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409430:254EE60

His Ser Asp Leu Met Ala Gly Ile Leu Ala Val Lys Gly Glu Ser Leu
290 295 300

Ala Lys Glu Val Gly Phe Leu Gln Asn Ala Glu Gly Ser Gly Leu Ala
305 310 315 320

Pro Phe Asp Cys Trp Leu Cys Leu Arg Gly Ile Lys Thr Met Ala Leu
325 330 335

Arg Val Glu Lys Gln Gln Ala Asn Ala Gln Lys Ile Ala Glu Phe Leu
340 345 350

Ala Ser His Pro Arg Val Lys Gln Val Asn Tyr Ala Gly Leu Pro Asp
355 360 365

His Pro Gly Arg Ala Leu His Tyr Ser Gln Ala Lys Gly Ala Gly Ser
370 375 380

Val Leu Ser Phe Leu Thr Gly Ser Leu Ala Leu Ser Lys His Val Val
385 390 395 400

Glu Thr Thr Lys Tyr Phe Ser Val Thr Val Ser Phe Gly Ser Val Lys
405 410 415

Ser Leu Ile Ser Leu Pro Cys Phe Met Ser His Ala Ser Ile Pro Ala
420 425 430

Ser Val Arg Glu Glu Arg Gly Leu Thr Asp Asp Leu Val Arg Ile Ser
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Val Gly Ile Glu Asp Val Glu Asp Leu Ile Ala Asp Leu Asp Arg Ala
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Leu Arg Thr Gly Pro Val
465 470

<210> 69
<211> 1685
<212> DNA
<213> Oryza sativa

<400> 69

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| cgcaaccctt | cctccgcctc | agctaccacc | cacgcctcac | gctctctcgc | cgcatggagg | 180 |
| cgccggcggc | gatcgccgac | tcccacggcg | gcggcgacct | gagcgcgctc | gcggtcggcg | 240 |
| cggaggcgct | gggcgccgct | gccgctccgg | atttcgatgt | ggagatgaag | gagcctagcg | 300 |
| tggcgacgat | actgacgagc | ttcgagaact | cgttcgatgg | gttcgggtct | atgagcacgc | 360 |
| cgctgtacca | gacggccacg | tttaagcagc | cttcagcaac | cgataatgga | ccttatgatt | 420 |
| acactagaag | tggttaaccct | acacgtgatg | ttctccaaag | ccttatggct | aagcttgaga | 480 |
| aggcggatca | ggcattctgc | ttcaccagtg | ggatggcagc | actagctgca | gtaacacacc | 540 |
| tccttaagtc | tggacaagaa | atagttgctg | gagaggacat | atatggtggc | tcagaccgtc | 600 |
| tgctctcaca | agttgccccg | agacatggga | ttgtagtaaa | acgaattgat | acaaccaaaa | 660 |
| ttagtgaggt | aacttctgca | attggggcct | tgactaaact | agtatggctt | gaaagtccca | 720 |
| ccaatccccg | tctacaaatt | actgatataa | agaaaatagc | agagatagct | cattaccatg | 780 |
| gtgctcttgt | tttagtagac | aacagcatca | tgtctcctgt | gctctcccgt | cctctagaac | 840 |
| ttggagcaga | tattgttatg | cactcagcaa | ccaaatttat | agctggacat | agcgatctta | 900 |
| tggctggaat | tcttgcggtg | aagggtgaaa | gcagcttggc | taaagagatt | gcatttctac | 960 |
| aaaatgctga | aggatcaggt | ttggcaccat | ttgattgctg | gctttgtttg | agaggaatca | 1020 |
| aaaccatggc | tttgcgggtg | gagaagcagc | aggctaatgc | tcagaagatt | gctgaatttc | 1080 |

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<210> 70
 <211> 476
 <212> PRT
 <213> Oryza sativa

<400> 70

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 Leu Gly Arg Leu Phe His Leu Arg Pro Thr Pro Asn Pro Ser Arg Asn
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 Leu Ser Gly Ser Ser Ala Gln Pro Leu Leu Arg Leu Ser Tyr His Pro
 35 40 45
 Arg Leu Thr Leu Ser Arg Arg Met Glu Ala Pro Ala Ala Ile Ala Asp
 50 55 60
 Ser His Gly Gly Gly Asp Leu Ser Ala Ser Ala Val Gly Ala Glu Ala
 65 70 75 80
 Leu Gly Ala Val Ala Ala Pro Asp Phe Asp Val Glu Met Lys Glu Pro
 85 90 95
 Ser Val Ala Thr Ile Leu Thr Ser Phe Glu Asn Ser Phe Asp Gly Phe
 100 105 110
 Gly Ser Met Ser Thr Pro Leu Tyr Gln Thr Ala Thr Phe Lys Gln Pro
 115 120 125
 Ser Ala Thr Asp Asn Gly Pro Tyr Asp Tyr Thr Arg Ser Gly Asn Pro
 130 135 140
 Thr Arg Asp Val Leu Gln Ser Leu Met Ala Lys Leu Glu Lys Ala Asp
 145 150 155 160
 Gln Ala Phe Cys Phe Thr Ser Gly Met Ala Ala Leu Ala Ala Val Thr
 165 170 175
 His Leu Leu Lys Ser Gly Gln Glu Ile Val Ala Gly Glu Asp Ile Tyr
 180 185 190
 Gly Gly Ser Asp Arg Leu Leu Ser Gln Val Ala Pro Arg His Gly Ile
 195 200 205
 Val Val Lys Arg Ile Asp Thr Thr Lys Ile Ser Glu Val Thr Ser Ala
 210 215 220

Ile Gly Pro Leu Thr Lys Leu Val Trp Leu Glu Ser Pro Thr Asn Pro
 225 230 235 240
 Arg Leu Gln Ile Thr Asp Ile Lys Lys Ile Ala Glu Ile Ala His Tyr
 245 250 255
 His Gly Ala Leu Val Leu Val Asp Asn Ser Ile Met Ser Pro Val Leu
 260 265 270
 Ser Arg Pro Leu Glu Leu Gly Ala Asp Ile Val Met His Ser Ala Thr
 275 280 285
 Lys Phe Ile Ala Gly His Ser Asp Leu Met Ala Gly Ile Leu Ala Val
 290 295 300
 Lys Gly Glu Ser Ser Leu Ala Lys Glu Ile Ala Phe Leu Gln Asn Ala
 305 310 315 320
 Glu Gly Ser Gly Leu Ala Pro Phe Asp Cys Trp Leu Cys Leu Arg Gly
 325 330 335
 Ile Lys Thr Met Ala Leu Arg Val Glu Lys Gln Gln Ala Asn Ala Gln
 340 345 350
 Lys Ile Ala Glu Phe Leu Ala Ser His Pro Arg Val Lys Lys Val Asn
 355 360 365
 Tyr Ala Gly Leu Pro Asp His Pro Gly Arg Ser Leu His Tyr Ser Gln
 370 375 380
 Ala Lys Gly Ala Gly Ser Val Leu Ser Phe Leu Thr Gly Ser Leu Ala
 385 390 395 400
 Leu Ser Lys His Val Val Glu Thr Thr Lys Tyr Phe Asn Val Thr Val
 405 410 415
 Ser Phe Gly Ser Val Lys Ser Leu Ile Ser Leu Pro Cys Phe Met Ser
 420 425 430
 His Ala Ser Ile Pro Ser Ala Val Arg Glu Glu Arg Gly Leu Thr Asp
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 Asp Leu Val Arg Ile Ser Val Gly Ile Glu Asp Ala Asp Asp Leu Ile
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<210> 71

<211> 1699

<212> DNA

<213> Triticum aestivum

<400> 71

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 agcttatgat tatactagaa gtggcaaccc tactcgtgat gttctccaga gccttatggc 180
 taagctcgag aaggcagacc aagcattctg cttcactagt gggatggcat cactggctgc 240
 agtaacacac ctccttcagg ctggacaaga aatagttgct ggagaggaca tatatgggtg 300
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aaaaaaaaaa aaaaaaaaaa 1699

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<210> 72
 <211> 381
 <212> PRT
 <213> Triticum aestivum

<400> 72

<400> 2

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Lys Tyr Gly Ala Leu Ser Thr Pro Leu Tyr Gln Thr Ala Thr Phe Lys
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Gln Pro Ser Ala Thr Val Asn Gly Ala Tyr Asp Tyr Thr Arg Ser Gly
 35 40 45

Asn Pro Thr Arg Asp Val Leu Gln Ser Leu Met Ala Lys Leu Glu Lys
 50 55 60

Ala Asp Gln Ala Phe Cys Phe Thr Ser Gly Met Ala Ser Leu Ala Ala
 65 70 75 80

Val Thr His Leu Leu Gln Ala Gly Gln Glu Ile Val Ala Gly Glu Asp
 85 90 95

Ile Tyr Gly Gly Ser Asp Arg Leu Leu Ser Gln Val Val Pro Arg Asn
 100 105 110

Gly Ile Val Val Lys Arg Val Asp Thr Thr Lys Ile Asn Asp Val Thr
 115 120 125

Ala Ala Ile Gly Pro Leu Thr Arg Leu Val Trp Leu Glu Ser Pro Thr
 130 135 140

Asn Pro Arg Gln Gln Ile Thr Asp Ile Lys Lys Ile Ser Glu Ile Ala
 145 150 155 160
 His Ser His Gly Ala Leu Val Leu Val Asp Asn Ser Ile Met Ser Pro
 165 170 175
 Val Leu Ser Trp Pro Ile Glu Leu Gly Ala Asp Ile Val Met His Ser
 180 185 190
 Ala Thr Lys Phe Ile Ala Gly His Ser Asp Leu Met Ala Gly Ile Leu
 195 200 205
 Ala Val Lys Gly Glu Ser Leu Ala Lys Glu Ile Ala Phe Leu Gln Asn
 210 215 220
 Ala Glu Gly Ser Gly Leu Ala Pro Phe Asp Cys Trp Leu Cys Leu Arg
 225 230 235 240
 Gly Ile Lys Thr Met Ala Leu Arg Val Glu Lys Gln Gln Asp Asn Ala
 245 250 255
 Gln Lys Ile Ala Glu Phe Leu Ala Ser His Pro Arg Val Lys Gln Val
 260 265 270
 Asn Tyr Ala Gly Leu Pro Asp His Pro Gly Arg Ser Leu His Tyr Ser
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 Gln Ala Lys Gly Ala Gly Ser Val Leu Ser Phe Gln Thr Gly Ser Leu
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 Ser Leu Ser Lys His Val Val Glu Thr Thr Lys Tyr Phe Asn Val Thr
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 Ser His Ala Ser Ile Pro Ser Ser Val Arg Glu Glu Arg Gly Leu Thr
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 355 360 365
 Ile Ala Asp Leu Asp Tyr Ala Leu Arg Ser Gly Pro Ala
 370 375 380

00034457 004604